

THE VARIABLE EFFECTS OF RELIGIOSITY  
ON DEVIANT BEHAVIOR

By

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Dedicated to Mom and Dad, Anne, and  
Kelly, and Walt

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Since its original formulation in 1969 by Hirschi and Stark, the Hellfire hypothesis has undergone several significant revisions. This hypothesis asserts that the extent of involvement in deviant behavior is inversely related to the degree of religiosity. Early revisions of this hypothesis have stressed the particular salience of religiosity on behaviors in violation of ascetic norms such as alcohol and marijuana use over those forms of deviance that are more secularly defined such as property crimes and personal offenses. Other revisions have called for the inclusion of both direct and indirect religiosity effects. The indirect effects are believed to be mediated through a religiously based morality of personal asceticism. Additional modifications argue for the inclusion of interaction effects. For instance, the influence of religiosity and personal asceticism on anti-ascetic behaviors is said to vary across religious affiliations. That is, these religious influences are expected to be

stronger among persons who identify with religious organizations that proscribe sensual indulgences like alcohol or marijuana use. Weaker effects, in turn, are expected for members of churches or denominations that are more tolerant of such behavior. Likewise, the effects of religiosity and personal asceticism are expected to vary by community type. Stronger effects are hypothesized for those persons who reside in communities where the majority express strong religious faith.

Each of these respecifications and modifications of the original Hellfire hypothesis are tested with survey data or self-reported deviance based on a sample of 3,065 male and female adolescents in grades seven through twelve in three midwestern states. The method of analysis employed is logistic regression and the results are quite mixed. While religiosity is inversely related with deviant behavior, its influence varies widely across forms of deviance. In addition, it appears that many of the revisions of the original hypothesis apply mainly to the consumption of alcohol and much less so for marijuana use. Limitations of the study are addressed and an attempt is made to ground the results in theory.

## CHAPTER ONE

### INTRODUCTION

The belief that a lack of religious commitment is a major element in the etiology of deviant behavior is a view held by at least a third of the general populations of both the United States (Jensen, 1981) and Great Britain (Banks et al., 1975). This view has also been repeatedly suggested in print over the years (Cooley, 1927; Coogan, 1945, 1954; Teeters and Reinmann, 1950; Hronke, 1955; Lee, 1957; Webb and Webb, 1957; Benson, 1960; Neumeyer, 1961; Travers and Davis, 1961; Blatt, 1967; Reckless, 1967; Hoover, 1968; Schafer and Knudten, 1970). In addition, this belief has long been reflected in the common practice of requiring, or at least encouraging, regular church attendance as a part of crime/delinquency prevention and rehabilitation programs (Gannon, 1967; Misra, 1983).

Nevertheless, many social scientists have been skeptical about the existence of an inverse religiosity-deviant behavior relationship (Benson, 1960; Falk, 1961; President's Commission, 1967; Hirschi and Stark, 1969; Schur, 1969; Sutherland and Cressey, 1974). Indeed, many have argued that the relationship is probably positive

(Ellis, 1910; Bonger, 1916; Lombroso, 1918; Steiner, 1924; Reckless and Smith, 1932; von Hentig, 1948; Barnes and Teeters, 1951; Argyle, 1959; Luden, 1964). Others skeptical of the existence of an inverse relationship between religiosity and deviant behavior, base their objections, in part, on what seems to be conflicting evidence in the literature (see Martin and Fitzpatrick, 1964; O'Dea, 1966; Knudten and Knudten, 1971).

This controversy has been fueled in recent years by a growing body of research suggesting that religiosity and deviant behavior are, in fact, inversely related. Tittle and Welch (1983) report that only ten of the sixty-five studies they reviewed failed to report a significant negative relationship between religiosity and some indicator of deviant behavior. However, many contemporary social scientists still remain skeptical and are hesitant to grant the "religious factor" much worth. Often they base their criticisms on the absence of any sound theoretical explanations. Others claim that the observed relationships are essentially coincidental or spurious.

While such criticisms can be legitimately leveled against the early research efforts, they lose much of their validity when applied to the more recent literature. These works consistently utilize more sophisticated methodologies and have produced improved theoretical specifications of an originally simplistic model. In the following chapter, I



present a critical review of this body of literature and highlight the key theoretical developments. I analyze these developments as essentially progressive modifications or respecifications of the original "Hellfire and Delinquency hypothesis" tested by Hirschi and Stark (1969). I label the first modification, following the lead of Middleton and Putney (1962) and Burkett and White (1974), the "Anti-asceticism hypothesis." The next, suggested by Jensen and Erickson (1979), I call the "Norm Qualities hypothesis." I follow that with the "Moral Communities hypothesis," based on the works of Stark et al. (1980; 1982). Finally, I suggest an integration of these modifications which I label the "Moral Communities-Norm Qualities hypothesis." In subsequent chapters I submit each of these hypotheses and the models derived from them to statistical tests with survey data on self-reported adolescent deviance (i.e., delinquency, substance use, and premarital sex). Thus, this dissertation represents the first time that all of the hypotheses which dominate the extant literature regarding the effects of religiosity on deviant and delinquent behavior are tested with one source of data in a single research effort. In addition, this study addresses many of the theoretical and methodological shortcomings of previous research. Finally, a wider variety of deviant and delinquent behaviors is examined in this study than in any other work to date. As such, it is this author's opinion

that this project will make a significant contribution to the literature and will not be just another study on the religiosity-deviant behavior relationship.

## CHAPTER TWO

### HELLFIRE AND BEYOND: THEORY AND HYPOTHESES ON THE RELATIONSHIP BETWEEN RELIGION AND DEVIANCE

#### The Early Literature

The early literature dealing with religiosity and deviance (i.e., studies conducted prior to 1969) is replete with works by reformers, priests, ministers, and others with a vested interest in demonstrating that religion acts do discourage deviance. In some cases they evaluated the effectiveness of church youth centers in preventing delinquency (Fitzpatrick, 1967) and in others they attempted to demonstrate how church sponsored homes for delinquents were able to instill moral values (Coogan, 1954). Many, however, discovered a relationship between religiosity and delinquent behavior opposite to that expected. That is, delinquents were often found to be more religious than nondelinquents (Schlapp and Smith, 1928; Middleton and Fay, 1941; Kvaraceus, 1944; Diaz, 1952; Falk, 1961; Gannon, 1967). With few exceptions, such studies were based on samples of institutionalized or known delinquents (e.g., Wattenberg, 1950). Their results, therefore, are questionable; for in many cases, it was in the interests of the institutionalized child to claim a highly religious character. In other studies, extreme groups of delinquents

and nondelinquents were selected and compared. For example, Travers and Davis (1961) compared a sample of known delinquents to a sample of alter boys. The use of such extreme groups insured that these investigators would find a negative relationship between religiosity and delinquency. Finally, some of the studies conducted during this period did find an appreciable inverse effect (Healy and Bronner, 1936; Glueck and Glueck, 1950; Dominic, 1954; Miller, 1965). However, these studies are clearly dated and their findings should be viewed with some skepticism. (For a more thorough and critical review of these early works see Knudten and Knudten, 1971).

#### The Hirschi and Stark Hellfire Hypothesis

It was not until 1969 with the publication of "Hellfire and Delinquency" (Hirschi and Stark) that the religiosity-deviant behavior relationship was again brought into prominence in the sociology of deviance. Hirschi and Stark tested the notion that "religious sanctioning systems play an important role in ensuring and maintaining conformity to social norms" (1969: 202). Religion was said to perform this role (1) through its system of beliefs which legitimizes social values, (2) through its rites and rituals that reinforce the commitment to these values, and (3) through its system of eternal rewards and punishment which ensures the embodiment of these values in actual behavior (1969: 202-203). In sum, religion both ensures conformity

through its beliefs, rites, and rituals and deters deviance through the threat of hellfire for sinners. This "Hellfire hypothesis" may be stated formally as

H<sub>1</sub>: The greater the degree of religiosity, the lower the probability of delinquent behavior.

Using survey data from a sample of 4,007 students entering public junior and senior high schools in West Contra Costa County, California, Hirschi and Stark found that church attendance and belief in supernatural sanctions were not significantly related to self-reported delinquency. They claimed that religion was not an important factor in explaining deviant behavior. Their findings "quickly became the accepted word on the subject, frequently cited and widely reprinted" (Stark et al., 1982: 5). For some, these findings resulted in the argument that the "religious factor had finally been laid to rest" (Jensen and Erickson, 1979: 158), but for others they have served as a catalyst for the "resurgence of study into the relationship between religiosity and delinquency" (Anderson and Wakefield, 1983: 4).

More recent research has suggested that religiosity is relevant to predicting deviant behavior (see Ellis, 1985 for a lucid review of this literature or Table 1 in Appendix A for a brief presentation). The year following Hirschi and Stark's landmark study Rhodes and Reiss (1970) examined the relationship between delinquency and truancy and religion using data obtained from over 20,000 junior and senior high school students in the Nashville and Davidson County,

Tennessee, school systems. They concluded that there is a religious factor in delinquent and truant behavior.

Five years later, in a study of high school and college students, Rohrbaugh and Jessor found religiosity to be "correlated positively and significantly with other measures of personal controls . . . and negatively with measures of deviance proneness and deviant behavior" (1975: 153).

In 1977, Higgins and Albrecht used self-report data from 1,383 Atlanta tenth graders to study the relationship between church attendance and a variety of delinquent behaviors. They found modest to moderately strong negative relationships between the frequency of church attendance and a list of seventeen delinquent behaviors. They suggested that their findings diverge from Hirschi and Stark's because of differences in the research settings. That is, religiosity may be more significant in the South than in the West.

Further support for the Hellfire hypothesis has been found by Albrecht et al. (1977). Using data collected from 244 Mormon teenagers in three western states, these authors found that when religious indicators were combined with measures of peer and family relationships into a contingent consistency model, good prediction of deviance was obtained ( $R^2 = .54$  to  $.69$ ). Jensen and Erickson (1979) and Tittle and Welch (1983) have also found support for the Hellfire hypothesis.

However, Elifson et al., in a study of 568 students attending grades nine through twelve in 21 public high schools in suburban DeKalb County (Atlanta), Georgia, found that "within a multivariate context religion's contribution as an independent variable was not statistically significant" (1983: 505). Likewise, Burkett and White (1974) in a replication of the original Hirschi and Stark study, observed that the frequency of church attendance was not significantly related to a six-item self-reported delinquency index for white senior class students in three Pacific Northwest high schools. Finally, Anderson and Wakefield (1983) found only mixed support for the Hellfire hypothesis with data from 170 Louisiana college students. That is, while significant inverse relationships were observed between religiosity and victimless crimes, no relationship was observed for crimes against the person. These inconsistent findings suggest that the Hellfire hypothesis may be too broad and in need of revision.

First Revision: The Middleton and Putney  
Anti-Asceticism Hypothesis

Much of the prior research has used composite indices of delinquent behavior as the dependent variable. However, such indices fail to tap the forms of deviance that religion should theoretically be expected to influence in a contemporary, secular society. Agreeing with this argument, Middleton and Putney (1962: 142) state that

there has been a failure to distinguish two different types of ethical standards--the ascetic and the social. Social standards proscribe actions which in general are harmful to the social group, and . . . tend to be shared as a part of a general social ideology. The fact that religious ideology may also proscribe these actions is incidental. . . . In contrast, ascetic standards--abstinence from sensual indulgences, gambling, and the like--derive primarily from an ascetic religious tradition. Within the context of religious ideology violations of ascetic standards may be spiritually harmful to the perpetrator. But since these violations are usually not directly or obviously harmful to the social group . . . ascetic standards have less persuasiveness to the secularly oriented individual. He is therefore more likely to violate them. In short, . . . difference in behavior of the religious and the nonreligious are confined to specific areas and are a product of difference in standards rather than of differential upholding of standards.

Basing their ideas on this suggestion by Middleton and Putney, Burkett and White (1974) claimed that only when secular values are ambiguous in their definition of an activity as wrong can religiosity have an important deterrent impact. They suggest that behaviors such as premarital sex, gambling, and substance use, which are not consistently disapproved of in the secular setting, are more likely personal or property crimes to be affected by religiosity. Using self-report data from 855 seniors in three Pacific Northwest high schools, Burkett and White found religiosity to be more predictive of adolescent alcohol and marijuana use than of a delinquency index based on property crimes and violent offenses. They concluded that "blanket generalizations regarding the relationship between religious participation and delinquency are not



warranted," and that "religious participation is . . . more closely related to some kinds of delinquent behavior than to others" (1974: 459).

McLuckie et al. (1975: 132), in a survey of drug use based on a sample of over 30,000 students in grades seven through twelve, found that "a full 88.9% of those who regularly attend services, i.e., attend once a week or more, are neither users nor quitters. Only 11.1% of regular attenders have ever used drugs. Among those who never attend, on the other hand, 25.8% have used drugs at one time or another." They also found that the zero-order correlation between attendance and drug use remained basically unchanged at the first order when several sociodemographic factors were controlled.

In 1975, Rohrbaugh and Jessor observed that an eight-item composite religiosity scale correlated significantly and positively to intolerance of premarital sex and marijuana use in a sample of male and female college and high school students. Religiosity was also seen to "function as a personal control by regulating problem behavior as theoretically expected" (1975: 146). That is, the composite religiosity scale correlated negatively with behavioral indicators of premarital sex and marijuana use for both high school and college students.

Albrecht and his colleagues (Albrecht et al., 1977) also found support for the expectations of Burkett and White when they observed that religious variables were more

strongly related to victimless than to victim deviance. Further, Linden and Currie (1977), Jensen and Erickson (1979), Schlegel and Sanborn (1979), Turner and Willis (1979), Nelson and Rooney (1982), Elifson et al. (1983), Anderson and Wakefield (1983), Cochran and Bock (1984), Hadaway et al. (1984), Bock et al. (1985), and Cochran et al. (1986) have all found statistically significant, negative relationships between religiosity and some indicator of anti-ascetic behavior such as alcohol or drug use. In fact, the cumulative evidence suggests that religiosity and certain forms of anti-ascetic behavior are so related as to constitute an empirical generalization (Bock et al., 1985). Thus, the original Hellfire hypothesis should be revised as follows:

H<sub>2</sub>: The greater the degree of religiosity,  
the lower the probability of anti-ascetic  
behavior.

Unfortunately, in nearly all of the research reviewed to this point a crucial element which serves as a key link between religiosity and anti-ascetic behavior has been omitted. The omitted variable is the degree of religiously based personal asceticism. In separate analyses of adolescent substance use, Steven Burkett (1977; 1980) concluded that (1) the greater the degree of involvement in religious activities, the greater the likelihood that one will maintain religious beliefs opposed to the use of alcohol and marijuana, and (2) the more persons adhere to such beliefs, the less likely they are to use these

substances. Thus, according to Burkett, "it is in the acceptance of a belief relating to a religiously based morality of personal asceticism, then, that the relationship between church attendance and use is most apparent" (1977: 267).

Both Rohrbaugh and Jessor (1975) and Perkins (1985) have also recognized the importance of including a measure of the consequential salience of religion in one's daily life. Rohrbaugh and Jessor (1975) asked each of their respondents to indicate how much of an influence religion has on the way they choose to act and spend their time each day. Perkins (1985), however, assessed the respondent's personal attitude toward alcohol. While the Perkins measure is more directly relevant to a study on the effects of religiosity on anti-ascetic deviance than the consequential religiosity indicator used by Rohrbaugh and Jessor, neither measure is as theoretically appropriate as that used by Burkett (1977; 1980). Burkett asked his subjects to indicate the degree to which they believe that alcohol or marijuana use is a sin. In addition, neither Rohrbaugh and Jessor (1975) nor Perkins (1985) utilized their measures as variables linking religiosity to anti-asceticism. Only Burkett (1977; 1980) has included an indicator of religiously based personal asceticism in the theoretically appropriate manner. From his work we can add two corollaries to the anti-asceticism revision of the original Hellfire hypothesis:

H<sub>2a</sub>: The greater the degree of religiosity,  
the greater the degree of personal  
asceticism.

H<sub>2b</sub>: The greater the degree of personal  
asceticism, the lower the probability of  
anti-ascetic behavior.

Second Revision: The Jensen and Erickson  
Norm Qualities Hypothesis

With few exceptions, empirical examinations of the religiosity-deviance relationship have been restricted to analyses at the individual level. These individual-level models stress that religious beliefs and activities function to deter the individual from engaging in behaviors which violate ascetic norms through the threat of supernatural sanctions. Though such a model is quite reasonable, particularly given the overwhelming consistency of supportive research, it makes no reference to social structure or process. A model that incorporates this individual-level process into a more sociological or structural framework would provide a more thorough specification and a better theoretical explanation.

Such a model can be found in the work of Jensen and Erickson (1979). They suggest that one of the more severe flaws of the past research in this area is the failure to examine the differential effects of religiosity on anti-ascetic behaviors across religious affiliations. Few studies have specified denominational breakdowns and nearly all have failed to consider the possibility of an

interaction between religious affiliation and religiosity on deviance. Such studies have ignored the possibility that religiosity may be more relevant to understanding particular forms of deviance such as substance use in some denominations than in others (Jensen and Erickson, 1979: 159-160).

In a study of 3,268 Arizona high school students, Jensen and Erickson (1979) observed that participation in a religion (i.e., Mormon) that strongly emphasizes asceticism and clearly proscribes drug use is particularly consequential for such activities. That is, church attendance is more strongly related to substance use among Mormon youth than among Catholics or Protestants. However, Jensen and Erickson also found that the prominence of this interaction between religion and religiosity weakens as the seriousness of substance increases. This is somewhat consistent with the expectations of Burkett and White (1974) for all denominations are probably quite similar in their stands on serious drug use. More distinctive differences are likely where denominational standards are more varied (e.g., alcohol and marijuana use).

Nelson and Rooney (1982) with data from nearly 5,000 high school seniors from six states in the northeast also found that denomination and religiosity interact such that church attendance has a special impact on self-reported alcohol and marijuana use within the more proscriptive denominations. That is, members of Baptist, Methodist, and

other fundamentalist Protestant sects reported a stronger inverse relationship between religiosity and substance use than did Catholics or members of the prescriptive Protestant denominations. Likewise, Nelson and Rooney witnessed a weakening of this interaction as the seriousness of the substance used increased.

Cochran and Bock (1984) and Bock et al. (1985) each utilize the NORC General Social Surveys data and find that the relationship between religiosity and alcohol use varies across religious affiliations. In these studies, religiosity has the greatest deterrent impact on adult alcohol use for members of proscriptional denominations (i.e., those which take a strong stand against alcohol). In addition, Schlegel and Sanborn (1979) and Hadaway et al. (1982) have also found evidence of a significant interaction between religious affiliation and religiosity on self-reported substance use. However, McIntosh et al. (1981) failed to find any significant affiliation-religiosity interactions. In fact their findings indicate that the effect of religiosity on adolescent drug use is quite stable across denominations. Linden and Currie (1977) even found evidence of a denomination-religiosity interaction contrary to that expected by Jensen and Erickson. That is, they observed a stronger inverse relationship between church attendance and drug use within the prescriptive denominations than within the proscriptional denominations.

Thus, though the evidence is somewhat mixed and far from conclusive, the varying moral messages of religious affiliations appear to constitute important normative climates which impact upon the religiosity-anti-asceticism relationship. The addition of information on religious affiliation may permit a more precise specification of the revised Hellfire hypothesis and may be formally stated as follows:

H<sub>3</sub>: The greater the degree of denominational proscriptiveness, the stronger the effects of religiosity and personal asceticism on anti-ascetic behavior.

Without exception, however, each of the studies that have attempted to examine the influence of denomination on the relationship between religiosity and anti-ascetic behavior have categorized religious affiliations according to the proscriptiveness attributed to them by researchers. While such categorizations are fair and valid in only a very general sense, they are gross in the manner in which they treat as equal denominations with significant differences in doctrine. Only Cochran et al. (1986) have maintained these salient distinctions by analyzing the effect of religiosity on alcohol use within each denomination separately. However, even this study can be faulted for failing to consider differences that may exist in denominations with the same name. Perhaps a better method for distinguishing between proscriptive and prescriptive affiliations is available. Rather than categorizing according to attributions of proscriptiveness or prescriptiveness,

denominations can be categorized by how they are perceived by their members. Krohn et al. (1982) found that the perceived normative climate of one's religious reference group was related to both attitude towards and the use patterns of alcohol and marijuana. Employing indicators of both attributed and perceived denominational proscriptiveness results in the following corollaries to the above respecification of the revised Hellfire hypothesis:

H<sub>3a</sub>: The greater the degree of attributed denominational proscriptivness, the stronger the effects of religiosity and personal asceticism on anti-ascetic behavior.

H<sub>3b</sub>: The greater the degree of perceived denominational proscriptivenss, the stronger the effects of religiosity and personal asceticism on anti-ascetic behavior.

Third Revision:

The Stark et al. Moral Communities Hypothesis

A second alternative model to the traditional individual-level model can be derived from the work of Durkheim. Durkheim (1915) defined religion as a unified system of beliefs and practices which serves to bind adherents into a moral community. This definition stresses a sociological feature of religion that is relevant to the study of deviant behavior. That is, religion is not said to make individuals afraid to sin, but to unite many individuals into a moral community. It is the community of moral adherents that controls the individual member from violating ascetic standards.



This structural feature of religion is not an omnipresent and constant aspect of social life; rather, it is a variable feature. That is, societies and communities vary in the extent to which religion binds them into moral communities (Stark et al., 1982). In contemporary, industrial societies like the United States, where social norms are often highly secular, ambiguous, and unshared, many people do not live in moral communities. People who do not reside in moral communities, even the very religious and devout, are more likely to violate ascetic norms. It is only in communities where religious influences permeate the culture and the social interactions of its members, where religion is an integral aspect of everyday life, that individual religiosity deters anti-ascetic behavior. Where religion is not as pervasive, the deterrent effect of individual religiosity is substantially reduced.

Higgins and Albrecht (1977) were the first investigators to observe such a relationship. They suggested that a possible reason why their findings differed from those of Hirschi and Stark (1969) might be due to the varying religious climates of the communities studied. That is, the null finding of Hirschi and Stark may be due to the fact that their sample was drawn from the nonreligious West, whereas the Higgins and Albrecht sample was drawn from the more religious South.

Stark et al. (1980) were able to support this argument. They found a highly significant correlation between church

membership rates and the overall crime rates in 193 SMSAs. In a second analysis based upon self-report data, these authors found that there is also a very substantial negative relationship between religiosity and delinquency in those secondary schools in which religious students are the majority (Stark et al., 1982). This relationship diminishes as the proportion of religious students decreases and vanished in the highly secularized West Coast schools.

According to Tittle and Welch (1983), because most religions are devoted to the practice and promotion of moral behavior, it follows that participation in religious activities exposes one to definitions unfavorable toward anti-ascetic behavior. The probability is greatest that religious individuals who inhabit moral communities are more likely to be exposed to an excess of definitions unfavorable toward anti-ascetic behavior; hence, such individuals should be least likely to engage in anti-ascetic behaviors.

Whether a control or a differential association framework is preferred, the resulting empirical model is the same. This model states that the preventive effect of individual religiosity on ascetic norm violations is greatest in those communities where religion is most pervasive. This model may be stated formally as a testable hypothesis as follows:

- H<sub>4</sub>: The greater the degree of aggregate religiosity, the stronger the effects of religiosity and personal asceticism on anti-ascetic behavior.

Forth Revision: The Integrated  
Moral Communities-Norm Qualities Hypothesis

Though presently unexplored, the hypotheses generated from the three revisions of the Hellfire hypothesis just reviewed can be integrated into a theoretically more complete model. That is, the relationship between religiosity, personal asceticism, and anti-ascetic behavior may be conditional upon not just the proscriptive or prescriptive norm qualities of the various religious affiliations, nor simply upon the degree of aggregate religiosity; but rather, upon both denominational proscriptiveness and aggregate religiosity. As such, the relationship between religiosity and personal asceticism on anti-ascetic behavior varies by both denominational norms (either proscriptive or prescriptive), and the extent to which the communities under examination represent moral communities (i.e., high versus low aggregate religiosity). The following hypothesis is generated from such an integration:

- H<sub>5</sub>: The greater the degree of denominational proscriptiveness (attributed or perceived) and the greater the degree of aggregate religiosity, the stronger the effects of religiosity and personal asceticism on anti-ascetic behavior.

## CHAPTER THREE

### METHODOLOGY

#### Data

The data for this study come from research directed by Ronald L. Akers and Marvin D. Krohn designed to examine adolescent substance use and delinquent behavior and supported by the Boys Town Center for the Study of Youth Development (See Akers et al., 1979; Krohn and Massey, 1980; Krohn et al., 1982). These data will be referred to here as the "Boys Town data." These data were collected by administering anonymous, confidential questionnaires to 3,065 male and female adolescents attending grades seven through twelve in seven school districts in three midwestern states. In the collection of these data, Akers and his associates followed a two-stage sampling design. First, schools from within each of the participating school districts were selected; second, two to three classrooms per grade level per school from among the required or general enrollment classes were selected. Schools were selected so as to be representative in terms of size and location within their districts. In the smaller districts this meant selecting all or almost all of the junior and senior high schools in the district. Classrooms were also selected in

terms of school and average classroom size. Although classrooms were sampled, each student had an approximately equal chance of being included in the sample. This design was structured to limit the involvement of as few schools and school personnel as possible, to minimize intrusion into the school routine, and to facilitate the administration of the questionnaire to groups of respondents.

The questionnaire was administered to all students in attendance in the selected classrooms on the day of the survey who had obtained written parental permission. Overall, 74% of the parental permission forms distributed one week prior to the administration of the questionnaire were returned. Ninety-five percent of those returning these forms were granted permission to participate. Attrition from this parental permission procedure combined with absenteeism on the day of the survey reduced the proportion of students who answered the questionnaire to 67% of the total number enrolled in the sampled classrooms. While this is somewhat lower than the response rate obtained in many the national studies, it is better than others have reported when the affirmative permission procedure is adopted (see Radosevich et al., 1979). The design followed by Akers and his colleagues does not technically constitute a random sample of subjects. In fact, there was no attempt to obtain a probability sample nor to insure that the sample was regionally or nationally representative. Nevertheless, the sample is sufficient to allow tests of the various

religiosity-deviant behavior hypotheses derived from the literature review presented in Chapter Two.

Careful steps were taken to insure the rights of the research participants. The usual university procedures were followed regarding approval of the projects procedures for protection of the rights of the respondents and of the school districts. Prior to the administration of the questionnaire, the sampled classrooms were visited. During each visit the students were informed of the survey and were given an envelope containing a letter explaining the purpose and content of the study to the parents and a parental consent form. The students were told that their participation in the study was completely voluntary, that their participation was not a condition for class credit or any other school requirement, and that approval of the study by the district and school officials in no way made their participation mandatory. The students were assured that their anonymity would be protected and that their responses would be held in strictest confidence. The identification of the participating school districts, communities, and schools was also protected.

Finally, a small purposive subsample ( $n = 106$ ) of the respondents in five of the seven districts volunteered for follow-up interviews two to eight weeks after the administration of the questionnaire. These follow-up interviews were intended to serve as reliability and partial validity checks on the questionnaire responses. Research

has consistently shown that the self-report questionnaire technique is reliable and valid in measuring adolescent substance use and delinquent behavior (Whitehead and Smart, 1972; Block et al., 1974; Groves, 1974; Single et al., 1975; Hardt and Peterson-Hardt, 1980; Zimmerman and Broder, 1980; Hindelang et al., 1981; Akers et al., 1983). The checks on these data by Akers and his associates (1979:640-641) confirm this; internal consistency on interlocking items was high (Gammas = .91 and higher). In addition, a comparison of the responses to the substance use items on the questionnaire with responses to the same items asked during the follow-up interviews demonstrated a high degree of test-retest reliability with Gammas = .89 and higher (Akers et al., 1979:641). Given the high consistency on these sensitive items, there is little reason to suspect lower reliability in the responses to other items.

### Dependent Variables

#### Indicators of Delinquent Behavior

Appropriate tests of the Hellfire hypothesis ( $H_1$ ) require indicators of serious deviant behavior broad enough to tap a wide range of norm violations. In the past, serious deviant behavior has been operationalized by indices of self-reported offending. Two types of indicators of serious deviant behavior are available in these data. The first set of measures contains indices of

delinquency. Respondents were asked to indicate the frequency--never, once or twice, several times, or very often--that they had engaged in behaviors on a delinquency checklist. The items on this checklist include vandalism, motor vehicle theft, assault, use of or threatening to use a weapon, theft of things worth \$2 to \$50, and theft of things worth more than \$50. The distribution of responses on these items indicates that fewer than 11% of the subjects are involved in any of these delinquent behaviors more frequently than once or twice. Because of these highly skewed distributions, binary variables distinguishing between those youth who admit at least some involvement (1) and those who claim that they have never engaged in each delinquent behavior (0) are constructed. In addition to each of these dichotomized dependent variables, a dichotomous delinquency index is also constructed. This index distinguishes those youth who indicate no delinquency involvement (0) from those admitting at least some involvement in one or more of the items on the checklist (1).

The other measures of serious deviant behavior available in these Boys Town data are indicators of hard drug usage. Respondents were asked to indicate the frequency with which they had used stimulants, depressants, psychedelics, and narcotics. Response categories for these items were fixed and range along a six-point ordinal scale from 0 = never to 5 = use nearly every day. Like the



delinquency items discussed above, the distributions on these hard drug use items are highly skewed. Therefore, these items are also dichotomized to distinguish nonusers (0) from users (1). In addition, a dichotomous hard drug use index is also constructed. This index distinguishes abstinent youth (0) from those who report at least some use of one or more of these substances (1).

#### Indicators of Anti-Ascetic Behavior

Each of the modifications of the Hellfire hypothesis assert that the effect of religiosity and personal asceticism on deviant behavior is strongest for violations of ascetic standards. Indicators of such anti-ascetic behaviors have typically included alcohol use, marijuana use, and premarital sex. Items measuring each of these indicators are available in these data. As with the frequency of hard drug use items discussed above, respondents were asked to indicate the frequency with which they had used beer, wine, liquor, and marijuana. Though the response categories for these items range from 0 = never to 5 = use nearly every day, all values indicating at least some use are collapsed to form a single category. The employment of this coding procedure permits the dichotomization of these less serious substance use items (0 = nonuser, 1 = user). A general binary variable distinguishing abstainers from users of alcohol is also constructed. The final dependent variable is a dichotomous distinction

between those adolescents reporting no experience with premarital sex (0) and those claiming at least some involvement (1).

### Religious Variables

#### Religiosity

Religiosity is here defined as the extent to which one is religious, pious, or devout; the degree to which one expresses a sincere and earnest regard for religion. Such an orientation toward religion can serve many and diverse roles, from providing meaning to one's life, to yielding a sense of personal fulfillment, to securing access to social contacts and interpersonal relationships, to offering a set of standards against which to judge and guide one's actions (Rohrbaugh and Jessor, 1975). The present concern is with only one such aspect, namely, the role of religiosity as a control against deviance. The aim is to present evidence of the relationship of religiosity to measures of deviant behavior.

The complexity of religiosity as a concept is reflected in debates about its operationalization and about its single or multi-dimensionality. Religiosity has been measured in as many disparate ways as the frequency of attendance at religious services to the intensity of feelings of personal inspiration. Regarding the issue of dimensionality, early scholars were generally in agreement that the key element in

religiosity was a personal belief in a transcendent reality such as God (James, 1902; Durkheim, 1915). More recent scholars, however, have urged a multi-dimensional view. Their perspective acknowledges the centrality of religious beliefs or ideology, but encompasses other elements as well such as the consequential influence or salience of religion on one's daily life, and the actual participation in religious rituals (Glock and Stark, 1965).

While it would be preferable to construct measures of religiosity which systematically cover each of these dimensions, the items available in the Boys Town data are limited to two single-item measures of religiosity. Fortunately, the validity of such single-item measures of religiosity has been demonstrated (Gorsuch and McFarland, 1972). No measures of religious participation nor of religious ideology were included in the survey. The two religiosity measures available and their corresponding response categories and metrics are

Religiousness:

How religious a person are you?

- (1) not religious at all
- (2) a little religious
- (3) more than a little religious
- (4) quite religious

Participatory Salience:

Check the importance to you of the church group activities in which you participate or would like to participate:

- (1) not important at all
- (2) unimportant
- (3) important
- (4) very important

### Personal Asceticism

As indicated earlier, most of the previous research on the relationship of religiosity with anti-ascetic behavior is limited by the presence of omitted variable bias. The key omitted variable is the degree of religiously based personal asceticism. This measure serves as a crucial link between religiosity and anti-ascetic behavior; for religiosity is not only consequential in its direct preventive effect on ascetic deviance, but is also influential in its effect on one's beliefs and values. That is, the greater the degree of religiosity the greater the likelihood that one will maintain religious beliefs opposed to violations of ascetic norms. In turn, these religiously based personal attitudes also serve to prevent anti-ascetic behaviors. Thus, religiosity's effect on ascetic norm violations is both direct and mediated through personal ascetic beliefs and values.

Personal asceticism is operationalized in these data by two items which asked the respondents to indicate their attitude toward both alcohol and marijuana use. The response categories for each of these items were collapsed to construct dichotomous distinctions between those holding proscriptive definitions of use (1) and those with prescriptive definitions (0).

To insure that these indicators of personal asceticism are a reflection of religious norm qualities, the effects of the normative orientations of significant adults and peers

are controlled for. These control variables are measured by four questionnaire items which asked the respondents to report their perceptions of the norms governing alcohol and marijuana use (either proscriptive or prescriptive) held by those adults and peers whose opinions the respondent highly valued. Krohn et al. (1982) have shown with these data that respondent's attitudes toward alcohol and marijuana use are consistent with religious norms when controlling for the effects of peer and adult norms and therefore can constitute religiously based beliefs and values.

### Conditional Variables

#### Religious Norm Qualities

According to the Norm Qualities hypothesis ( $H_3$ ), the effects of religiosity and personal asceticism on anti-ascetic behavior vary with the differing normative orientations toward alcohol and marijuana of the various religious affiliations. That is, some denominations take a strong stand against substance use while others tend to be more prescriptive. These varying moral messages constitute important normative climates which should affect the impact of religiosity and personal asceticism on anti-ascetic behavior. To test this hypothesis it is, of course, necessary to operationalize these varying religious moral messages. Two measures of denominational proscriptiveness are available in these data. The first is the more

traditional indicator of denominational proscriptiveness that is based on normative orientations attributed to the religion based on knowledge of doctrine or liturgy; the other is a measure of respondents' perceptions of the norms of the religious group with which they identify.

Prior research has frequently grouped mainstream American religions according to attributed moral climate (Linden and Currie, 1977; Schlegel and Sanborn, 1979; Jensen and Erickson, 1979; McIntosh et al., 1981; Nelson and Rooney, 1982; Hadaway et al., 1982; Cochran and Bock, 1984; Bock et al., 1985). These efforts have consistently categorized Baptists, Methodists, and Fundamentalist Protestants together because of the clear ascetic stands against sensual indulgences that these denominations are known to take. Other categorizations typically include the remaining Protestant denominations (i.e., Lutherans, Presbyterians, and Episcopalians), Catholics, Jews, and the non-affiliated. Though these groupings are rarely combined, they are often treated similarly because of their relatively prescriptive normative orientations regarding alcohol use.

These prescriptive/proscriptive categorizations of mainstream religious affiliations are consistent with their liturgical use or non-use of alcohol during religious ceremonies (Bock et al., 1985). That is, those affiliations that are typically attributed as prescriptive tend also to include alcohol (wine) in their religious practices, while

the three proscriptive denominations prohibit such liturgical consumption.

Bainton (1945) has identified a third normative camp that encourages even excessive and unprescribed use. However, this permissive or "orgiastic" category has no representatives in mainstream American religious life. Therefore, attributed denominational proscriptiveness is operationalized by a dichotomous variable distinguishing between these two dominant religious normative climates. Respondents who indicated that their religious preference was either Baptist, Methodist, or Pentacostal are grouped together as proscriptive denominations and are contrasted with those whose religious preference was Catholic, Jewish, Episcopalian, Lutheran, Presbyterian, or none (0 = prescriptive, 1 = proscriptive). Respondents who indicated "other" as their religious preference are coded as missing.

Perceived denominational proscriptiveness is measured by responses to a question about what the respondents believe their religion teaches about the use of alcohol and marijuana. As with the other perceived norm qualities measures, perceived denominational proscriptiveness is coded to distinguish those who perceive their religion to be proscriptive in its stand on alcohol and marijuana use from those who perceive their religion to be more prescriptive.

The effects of religiosity and personal asceticism on anti-ascetic behaviors will be evaluated for each category

of attributed and perceived denominational proscriptivness. The effects are expected to vary by category with the strongest preventive effects predicted for those in the proscriptive groupings.

#### Aggregate Religiosity

A test of the Moral Communities hypothesis ( $H_4$ ) requires a measure which, at a minimum, distinguishes moral communities from non-moral communities. A moral community is said to exist where "a majority profess religious faith" (Stark et al., 1980: 44). This definition leads to an operationalization of the concept "moral community" by an indicator of aggregate religiosity (see Stark et al., 1980; 1982 and Tittle and Welch, 1983). Here, aggregate religiosity is measured by the percent per school district expressing strong religiosity.

The seven communities (i.e., school districts) that participated in the Boys Town project are categorized into moral communities according to their levels of aggregate religiosity. Those communities in which a majority (i.e., greater than 50%) express that they are quite religious are grouped together under the heading "high aggregate religiosity" which serves as an indicator of the presence of a "moral community" in the sense used by Stark et al. Those in which 50% or less express that they are very religious are similarly grouped, though under the heading "low aggregate religiosity"--an indicator of the relative



absence of a "moral community" as here defined. The effects of religiosity and personal asceticism on anti-ascetic behavior are expected to vary across levels of aggregate religiosity with stronger effects predicted for those residing in moral communities than for those isolated from such communities.

#### Control Variables

Eight control variables are employed in this study: four have already been introduced (i.e., the perceived normative orientations of both significant adults and peers regarding the use of alcohol and marijuana), the other four controls are the sociodemographic variables of age, race, gender, and SES. These variables are each coded in a straightforward manner: age is coded continuously in years, race and gender are each dummy coded with black and female, respectively, as the reference categories (all nonwhite, nonblack respondents have been coded as missing), finally SES is a measure of father's occupation (i.e., 9 point Census occupation category index). Table 2 in Appendix B presents the variables to be used in this analysis, their codings, and their distributions.

#### Method of Analysis

The method of analysis employed in this study is an analytic technique suitable for binary response dependent

variables. This technique utilizes a logistic regression procedure available in SAS (SAS, 1983). Although it is tempting to use the more common OLS multiple regression technique to investigate the influence of religiosity and personal asceticism on the indicators of deviant behavior, the presence of dichotomous dependent variables introduces several problems into the use of the general linear model approach commonly estimated by ordinary least squares--OLS (Hanushek and Jackson, 1977).

In order for multiple regression to provide the best, linear unbiased estimates (BLUE), the error terms must be normally distributed and independent of the values of the explanatory variables. However, in the case of dichotomous dependent variables the error terms are, by definition, also restricted to take on but two values. In such a situation the error terms are clearly not normally distributed. Error terms created by the dichotomous nature of the observations are also likely to be correlated with the values of the explanatory variables--clearly in violation of the above OLS assumption. Furthermore, in these situations (where the dependent variable, and consequently the error terms, can take on only two values), the assumption of equal variance of the error terms is also violated. Use of an OLS technique, therefore, would yield inefficient estimates and would render tests of significance meaningless.

A common solution to these problems concerning the distribution of the error term is the use of a generalized

or weighted least squares technique. However, this "solution" does not address the additional problem of inappropriate functional form due to the use of a linear solution for equations involving dichotomous dependent variables. Fitting a linear function to such variables would create an equation that yields probability estimates that extend beyond the possible probability range bound between 0 and 1. These observations suggest, therefore, that a non-linear function is more reasonable. The appropriate non-linear function is that of the general S-curve. Such a sigmoid function implies that a change in probability becomes more difficult to obtain as the probability approaches the natural limits of 0 and 1. Clearly such a solution is theoretically more appropriate.

The use of a maximum likelihood logit technique overcomes the difficulties presented by both the violation of the OLS error term assumptions and the inadequate linear functional form. Moreover, as multiple regression minimizes the distance between the observations and the regression line, logistic regression operates to maximize the probability of obtaining the observed data given the set of independent variables (see Chapter 7 of Hanushek and Jackson, 1977 and Chapter 6 of Agresti, 1984). Although this technique involves a different algorithm than the OLS solution, its use and interpretation are somewhat analogous. For instance, where in OLS regression an F statistic is computed to test the statistical significance of the model,

a similar test is available in logistic regression through the calculation of a chi-square statistic. Likewise, the statistical significance of the relative effects of the explanatory variables can also be computed. A proportional effect for each independent variable with an interpretation analogous to that of the unstandardized regression coefficients in OLS can also be calculated (refer to the partial derivative formula in Hanushek and Jackson, 1977:188-189). To do so the logistic regression coefficients must be transformed into instantaneous rate of change coefficients which estimate the proportional change in the predicted probability of falling into category 1 rather than category 0 of the dependent variable for each one-unit change in an independent variable, controlling for the influence of all other independent variables when evaluated as a linear effect tangent to the logistic curve at a particular point of comparison. The proportional effect of an independent variable,  $X_k$ , is  $P_k$ , where  $P_k = b_k[p(1 - p)]$ , where  $b_k$  is the logistic regression coefficient, and where  $[p(1 - p)]$  is the variance of the dependent variable at the instantaneous point of comparison,  $p$  (typically the mean of the dependent variable). These instantaneous rate of change coefficients describe the relative effects of an independent variable as a function of its contribution to the slope of the line tangent to the logistic curve at this single point of comparison. Thus, the value of the proportional change in the predicted

probability of  $Y = 1$  will vary according to the value of  $p$  chosen. Here,  $P_k$  will be evaluated at the mean of the dependent variable. Choosing another value of  $p$  would yield different estimates of the proportional effects, but the size of the coefficients relative to one another would remain the same. While such estimates are technically improper, they do provide an interpretation similar to that for OLS regression coefficients and are therefore informative. Of course the more technically correct interpretation of these logistic regression coefficients (i.e., multiplicative effects on the odds) is also provided. The former are employed solely for their clarity of interpretation.

Finally, SAS reports an additional estimate of the relative effects of each of the independent variables ( $R_k$ ). This statistic is a measure of association for the relationship between each independent variable and the dependent variable controlling for the effects of the other independent variables in the model. As such, it is claimed by Frank Harrell, the author of the SAS logistic regression procedure, to be analogous to the partial  $r$  statistic available in OLS regression.

In addition to these estimates of the relative effects of the independent variables, the predicted probability of falling into category 1 of the dependent variables  $P(Y=1)$  for both those who indicate high levels of religiosity and those with low levels of religiosity is also reported.

To compute these probabilities, one must first solve for  $L$ , the logit coefficient. This statistic is a function of the model intercept plus the sum of the products of each of the logistic regression coefficients ( $b_k$ ) and some value of  $X_k$  (i.e.,  $L = a + \sum b_k X_k$ ). The means of the control variables and both the maximum and minimum values of the religiosity and personal asceticism variables are used for the values of  $X_k$  in this equation. Once  $L$  is computed, the predicted probability of falling into category 1 of the dependent variable (i.e.,  $P(Y=1)$ ) can then be easily derived by dividing the inverse of  $L$  by one plus the inverse of  $L$ , i.e.,  $[e^L / 1 + e^L]$ . Employing both the minimum and maximum values of the religiosity and personal asceticism measures enables the comparison of the predicted probabilities for those who are strongly religious with that for those who are weakly religious. The reader should be cautioned, however, that such comparisons are valid only at the mean of the control variables.

One final comment, this SAS logistic regression procedure employs listwise deletion in its handling of missing data. This often resulted in a sizable reduction in the number of observations to be analyzed. Such reductions, of course, can have quite a substantive impact on one's findings. It was determined that the vast majority of deleted observations contained missing information on the SES measure, an important contextual variable necessary as a control in these analyses. A follow-up analysis, however,

indicated that there were no substantial differences regarding the distributions of the dependent or religion variables between those observations with missing data on SES and those with complete information (tables not reported). In addition, several models were reanalyzed with the SES variable excluded, thereby avoiding any substantive problems due to listwise deletion. No notable differences were observed (tables not reported). I am fairly confident, therefore, that these reductions in the number of observations analyzed had little or no substantive impact on the findings reported below.

CHAPTER FOUR  
HYPOTHESES AND MODELS

The review of the literature presented in Chapter Two traces several significant revisions and modifications of the original Hellfire hypothesis which asserts a negative relationship between religiosity and deviance. In this chapter I present the hypotheses derived from that literature review and add simple path diagram models corresponding to each hypothesis.

The Hirschi and Stark Hellfire Hypothesis and Model

H<sub>1</sub>: The greater the degree of religiosity,  
the lower the probability of delinquent behavior.

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RELIGIOSITY —————→ DELINQUENT BEHAVIOR

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Figure 4.1 The Hellfire Model.



The Middleton and Putney Anti-Asceticism Hypothesis  
and Model

- H<sub>2</sub>: The greater the degree of religiosity,  
the lower the probability of anti-ascetic behavior.
- a. The greater the degree of religiosity,  
the greater the degree of personal asceticism.
- b. The greater the degree of personal asceticism,  
the lower the probability of anti-ascetic behavior.

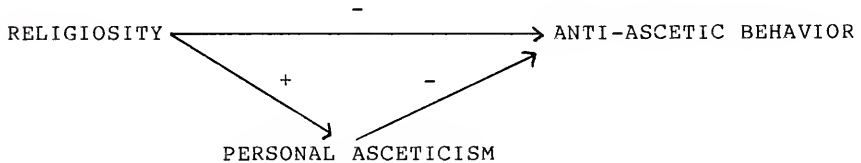


Figure 4.2 The Anti-Asceticism Model.

The Jensen and Erickson Norm Qualities Hypothesis  
and Models

- H<sub>3</sub>: The greater the degree of denominational proscriptiveness, the stronger the effects of religiosity and personal asceticism on anti-ascetic behavior.
- The greater the degree of attributed denominational proscriptiveness, the stronger the effects of religiosity and personal asceticism on anti-ascetic behavior.
  - The greater the degree of perceived denominational proscriptiveness, the stronger the effects of religiosity and personal asceticism on anti-ascetic behavior.

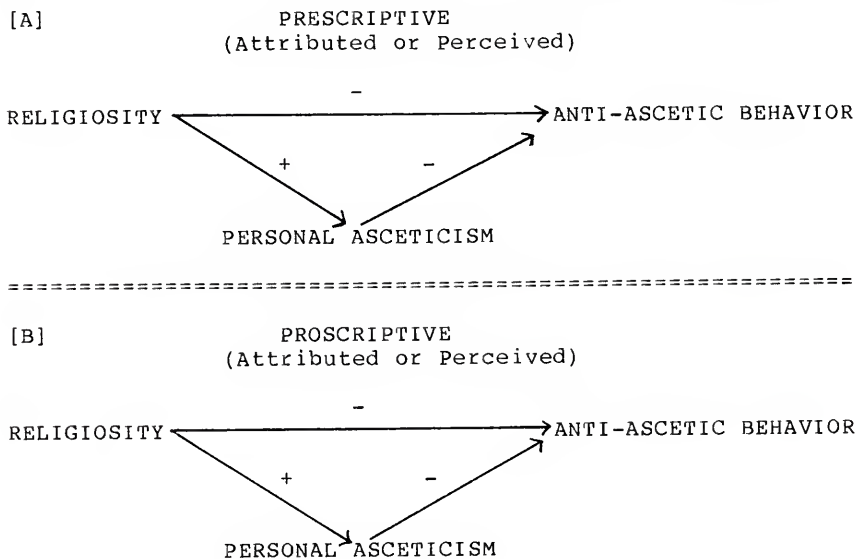


Figure 4.3 The Norm Qualities Models.

The Stark et al. Moral Communities Hypothesis  
and Models

H<sub>4</sub>: The greater the degree of aggregate religiosity, the stronger the effects of religiosity and personal asceticism on anti-ascetic behavior.

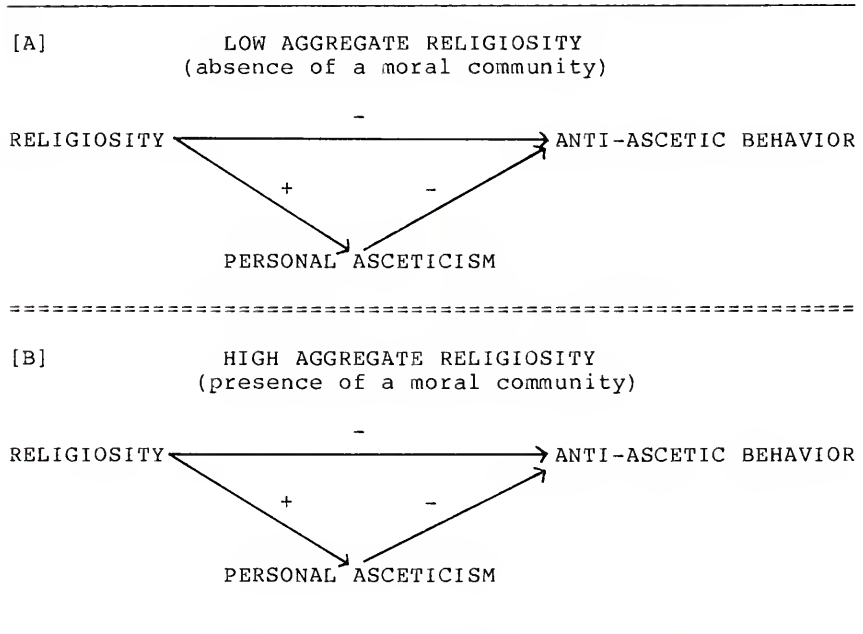


Figure 4.4    The Moral Communities Models.

The Integrated Moral Communities-Norm Qualities  
Hypothesis and Models

H<sub>5</sub>: The greater the degree of denominational proscriptiveness (attributed or perceived) and the greater the degree of aggregate religiosity, the stronger the effects of religiosity and personal asceticism on anti-ascetic behavior.

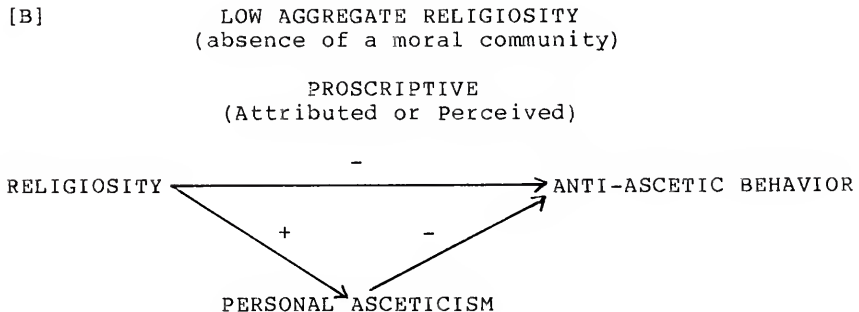
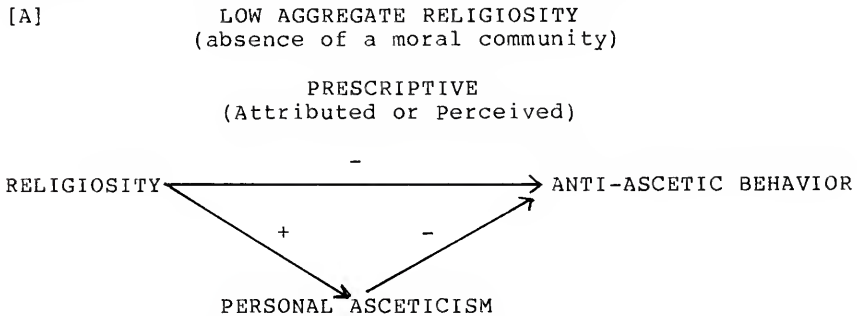
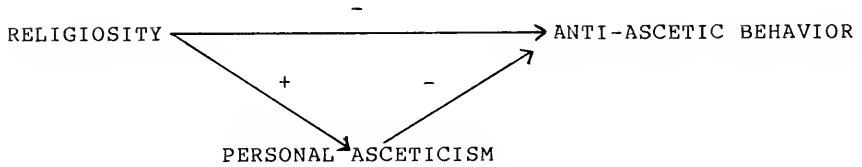


Figure 4.5 The Moral Communities-Norm Qualities Models.

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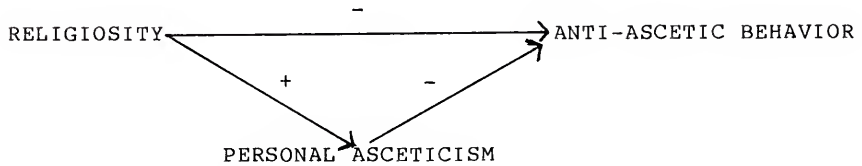
HIGHER AGGREGATE RELIGIOSITY

[C]                    HIGH AGGREGATE RELIGIOSITY  
                      (presence of a moral community)  
  
                      PRESCRIPTIVE  
                      (Attributed or Perceived)



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[D]                    HIGH AGGREGATE RELIGIOSITY  
                      (presence of a moral community)  
  
                      PROSCRIPTIVE  
                      (Attributed or Perceived)



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Figure 4.5 continued.

CHAPTER FIVE  
TESTS OF THE HIRSCHI AND STARK  
HELLFIRE HYPOTHESIS

Table 3 in Appendix C presents the results of several logistic regression analyses each testing the Hirschi and Stark Hellfire hypothesis ( $H_1$ ). Each model reported regresses a dichotomous indicator of serious deviant behavior on the two measures of religiosity--religiousness and importance of church activities--as well as the four socio-demographic control variables (i.e., age, race, gender, and SES). Each model contains the following statistical information: in the top portion of the table are (1) the logistic regression coefficients ( $b_k$ ) and (2) their standard errors-- $se(b_k)$ , (3) the proportional changes in the predicted probability of  $Y = 1$  for one-unit changes in the independent variables ( $P_k$ --also referred to as instantaneous rate of change coefficients), (4) estimates of the relative effects of the independent variables ( $R_k$  or partial  $R_s$ ), and (5) the intercept; in the middle of the table are (6) the  $-2$  log likelihoods for the model containing the intercept only as well as for (7) the complete model, (8) the model chi-square, (9) the coefficient of multiple correlation for the model ( $R_L$  see SAS, 1979:183), (10) the mean of the dependent variable ( $Y$ ), and (11) the sample size ( $N$ ); and at the bottom of the table are (12) the overall predicted

probabilities of falling into category 1 of the dependent variable,  $P(Y=1)$ , for both the strongly and the weakly religious. Parameter estimates are arbitrarily defined to be statistically discernible from zero when the attained significance levels for the various statistical tests are less than .05. While such tests of significance are technically inappropriate due to the design of the data collection, they will be retained for their informative value.

#### Religiosity and Involvement in Delinquent Behavior

The first model reported in Table 3 (Model 1) presents a test of the Hellfire hypothesis with the dichotomous delinquency index. The findings indicate some support for the Hellfire hypothesis. That is, both of the religiosity measures are related to involvement in delinquent behavior in the theoretically expected, negative, direction (i.e.,  $b_k = -.223$  and  $-.409$ ) and each effect parameter is statistically discernible from zero. The logistic regression coefficient of  $b_k = -.223$  for religiousness means that the odds of delinquent involvement is multiplied by  $\exp(-.223) = .8$  for every one-unit increase in religiousness. Thus, the odds of involvement in delinquent behavior are estimated to be  $.8^3 = .51$  times as high for the "quite religious" adolescents as for those who indicate that they are "not religious at all." The odds of delinquent

involvement is multiplied by  $\exp(-.409) = .66$  for every one-unit increase in participatory salience. Thus, the odds of involvement in delinquent behavior are estimated to be  $.66^3 = .29$  times as high for those adolescents for whom participation in church activities is "very important" as for those for whom such participation is "not important at all." The closer the value of this ratio is to zero the stronger the inverse effect. An odds of 1 suggests no relationship and the closer this value is to positive infinity, the stronger the positive relationship. The values of the partial R coefficients indicate that the impact of the religiousness variable is less than that of participatory salience on self-reported involvement in delinquent behavior ( $R_k = -.062$  versus  $-.103$ , respectively). The instantaneous rate of change coefficients when evaluated at the mean of Y indicate that for each one-unit increase in religiousness, the proportional changes in the predicted probability of delinquency involvement decreases by four percentage points ( $P_k = -.041$ ). Thus, youth who claim to be "quite religious" have a predicted probability of involvement in delinquent behavior that is 12% less than that for those who indicate that they are "not religious at all." Likewise, the proportional change in the predicted probability of delinquent behavior decreases by 7.5 percentage points for each one-unit increase in the importance of church activities. For those adolescents who



feel that involvement in church activities is "very important," the predicted proportional probability of involvement in delinquency is almost 23 percentage points less than that for those to whom such involvement is "not important at all."

Perhaps the strongest evidence in support of the Hellfire hypothesis can be found in the overall probability of self-reported delinquency involvement,  $P(Y=1)$ , predicted for the strongly religious compared to that for the weakly religious. Again, the reader is cautioned that these probability estimates are valid only at the means of the control variables. For those youth who are "quite religious" and for whom involvement in church activities is "very important," the predicted probability of delinquency is only .09. However, for those who are "not religious at all" and for whom participation in church activities is "not important at all," the predicted probability is much greater,  $P(Y=1) = .40$ . The difference in these predicted probabilities is .31, with the weakly religious far more at risk than the strongly religious. In fact the weakly religious are about 4.4 times more likely to report some involvement in delinquent behavior than the strongly religious. In sum, the data lend solid support to the Hellfire hypothesis; the likelihood of involvement in delinquent behavior is substantially reduced for those adolescents who are most religious.

Religiosity and Involvement in Specific Forms  
of Delinquent Behavior

The next six models presented in Table 3 (Models 2 through 7) report the findings of the logistic regression analyses testing the Hellfire hypothesis on the dichotomous dependent variables representing specific forms of delinquent behavior (i.e., vandalism, motor vehicle theft, assault, weapon use, and both petty and grand theft). Each model provides some additional, though limited, support for the Hellfire hypothesis.

With only one exception--the effect of religiousness on vandalism--the religiosity variables are inversely related with each form of delinquent behavior examined. The multiplicative effects on the odds for each one-unit increase in religiousness vary from  $\exp(-.193) = .82$  for petty theft to  $\exp(-.338) = .71$  for assault, excluding the positive effect of religiousness on vandalism. Thus, the odds of involvement in these forms of delinquency are estimated to be between  $.71^3 = .36$  and  $.82^3 = .55$  times as high for "quite religious" teens as for the "not religious at all." Similarly, the odds of such delinquency involvements are estimated to be between  $[\exp(-.463)]^3 = .25$  and  $[\exp(-.087)]^3 = .77$  times as high for those youths for whom participation in church activities is "very important" as for those who report that such participation is "not important at all." Finally, the instantaneous rate of change coefficients ( $P_k$ ) reported in these models range from

a low of  $-.014$  for the effect of religiousness on self-reported involvement in grand theft to a high of  $-.116$  for participatory salience and vandalism. These values indicate that, when evaluated at the mean of the dependent variables, and while controlling for the effects of the other independent variables, each one-unit change in the religiosity indicators results in from 1.4 to 11.6 percentage point decreases in the predicted probabilities of involvement in these delinquent behaviors. These findings suggest that religiosity does play a role in reducing involvement in delinquent behavior as predicted by the Hellfire hypothesis.

Similarly, the partial R coefficients ( $R_k$ ), while statistically significant, indicate that the substantive effects of religiosity on reducing involvement in specific types of delinquency is weak. The strongest partial correlation reported is that for participatory salience and vandalism ( $R_k = -.132$ ); the weakest, statistically significant, partial effect is that of religiousness on weapon use ( $R_k = -.038$ ). Overall, participation in delinquent activity is affected by religiosity, but this effect varies by the type of delinquent act.

Table 4 in Appendix C presents data which indicate that this variation in effect is systematic with the severity of the delinquent act. The severity rankings of these six offenses presented in Table 4 are based on the findings of Wolfgang and Figlio (1984). According to their research

vandalism is the least serious of these six delinquent behaviors and obtains a severity score of 1.1; petty theft is next with a score of 2.9 followed by grand theft at 3.6, motor vehicle theft at 4.4, assault at 7.3, and finally weapon use--the most serious--at 9.3. While the partial correlations for religiousness tend to remain rather steady (i.e., partial rhos generally between  $-.05$  and  $-.06$ ), the partial correlation coefficients for participatory salience decrease in value as the severity of the offense increases. This provides partial support for the arguments of Middleton and Putney (1962) and Burkett and White (1974) who claim that the impact of religiosity on reducing involvement in deviant behavior is strongest for low consensus or victimless crimes. Recall that this modification of the Hellfire hypothesis is referred to as the Anti-asceticism hypothesis ( $H_2$ ).

This general support for the Hellfire hypothesis with variations by type lending some credence to the Anti-asceticism hypothesis is also seen in Table 5 of Appendix C. The overall predicted probabilities of delinquency involvement,  $P(Y=1)$ , are substantially less for the strongly religious than for the weakly religious in each model. The predicted probability of involvement in vandalism for the strongly religious (i.e., those adolescents who report that they are "quite religious" and for whom involvement in church activities is "very important") is .31. While the predicted probability of involvement in vandalism for the

weakly religious (i.e., those adolescents who are "not religious at all" and for whom involvement in church activities is "not important at all") is .63. The difference between these predicted probabilities is .32 with the weakly religious twice as likely to report involvement in vandalism as the strongly religious.

Involvement in motor vehicle theft is unlikely for both the strongly and weakly religious with predicted probabilities of .04 and .15 respectively. However, these values indicate that the weakly religious are about 3.7 times more likely to engage in motor vehicle theft than the strongly religious. The weakly religious are 2.9 times more likely to engage in assaults than are the strongly religious, though such behavior is unlikely for both groups (i.e.,  $P(Y=1) = .23$  and  $.08$ , respectively). Similar probabilities are also predicted for involvement in weapon use ( $P(Y=1) = .19$  and  $.07$ , respectively) and grand theft ( $P(Y=1) = .10$  and  $.02$ , respectively). For petty theft, the probabilities of involvement are greater for each group ( $P(Y=1) = .60$  and  $.22$ , respectively). However, weakly religious adolescents are still about 2.7 times more likely to steal things of minor value than are their religiously committed peers.

Table 5 arrays these overall predicted probabilities according to the severity of each offense. The predicted probabilities are greatest for the two least serious offenses--vandalism and petty theft. For the remaining

four offenses the predicted probabilities are quite low and tend to increase only very slightly as severity increases. Note, also, the decreasing values of the risk factors (i.e., how many times more likely the weakly religious are to report involvement in delinquency than the strongly religious) as the severity of the offense increases from grand theft to weapon use. These values suggest, to a marginal degree, that the effects of religiosity may wane as offense seriousness increases.

Thus, as with the findings presented in Table 4, these results are both supportive of the Hellfire hypothesis and are also somewhat consistent with the claims of Middleton and Putney (1962) and Burkett and White (1974). I will return to this point later (See Chapter Six). However, before proceeding to tests of the Anti-asceticism hypothesis, additional models testing the Hellfire hypothesis with indicators of hard drug use will be examined.

#### Religiosity and Use of Hard Drugs

The findings for hard drug use parallel those for other delinquent behaviors, but the magnitude of the relationships tend to be weaker. Both of the religiosity indicators in Model 8 in Table 3 are inversely related to the index of overall hard drug use ( $b_k = -.379$  for religiousness and  $-.617$  for participatory salience). These logistic regression coefficients mean that the odds of hard drug usage are

multiplied by  $\exp(-.379) = .68$  for every one-unit increase in religiousness and by  $\exp(-.617) = .54$  for every one-unit increase in participatory salience. Thus, the odds of hard drug use are estimated to be  $.68^3 = .32$  times as high for the "quite religious" as for the "not religious at all" and  $.54^3 = .16$  times as high for those adolescents for whom participation in church activities is "very important" as for those to whom such participation is "not important at all." The partial R for religiousness, however, is only  $-.098$  and the proportional change in the predicted probability for each one-unit change in religiousness is  $-.039$ . Thus, students who consider themselves to be "quite religious" are 11.7 percentage points less likely to be hard drug users than those who report that they are "not religious at all." For participatory salience the partial R is  $-.148$  and the predicted proportional change in probability is  $-.064$ ; each one-unit increase in the importance of church activities results in a decrease of 6.4 percentage points in the probability of using hard drugs. Adolescents for whom participation in church activities is "very important" are 19.2% less likely to report experience with hard drugs use than those for whom such participation is "not important at all."

The overall predicted probability of drug use for the strongly religious (those reporting maximum values of both religiousness and participatory salience) is .02 when evaluated at the means of the control variables; for the

weakly religious (those reporting minimum values) the overall predicted probability is much greater at .28. Thus, even though the likelihood of use is slim, the risk for the weakly religious is still 14 times greater than that for the strongly religious.

The final four models reported in Table 3 (Models 9 through 12) present the results of logistic regression analyses for each of the types of hard drugs that compose the dichotomous hard drug use index discussed above--stimulants, depressants and tranquilizers, psychedelics, and narcotics and opiates. The results of these analyses mirror those just presented above in Model 8. In all four of these models, the two religiosity indicators are inversely related with the dependent variables. However, the strength of these relationships is generally weak. That is, the partial Rs range in value from  $-.068$  to  $-.146$ . For stimulants, depressants, and psychedelics, the impact of participatory salience is stronger than the impact of religiousness. For narcotics, religiousness has the stronger effect.

In sum, these data provide additional, but limited, support for the Hellfire hypothesis. While the independent effects of the two religiosity indicators are quite weak, and the variance accounted for is small, the combined impact of these religiosity measures is more substantial. That is, weakly religious adolescents are considerably more likely to report use of hard drugs than are the strongly religious. The predicted probability of hard drug use overall and for



each substance is low even for the weakly religious, but they are far more likely to use hard drugs than the strongly religious. In fact, the chance that an adolescent who is strongly religious is using any of these drugs is essentially zero.

### Conclusions

In conclusion, each of the twelve models presented in Table 3 provide some support for Hirschi and Stark's Hellfire hypothesis. From these models, the following conclusions may be drawn:

- 1) The two indicators of religiosity are nearly always inversely related with the indicators of serious deviant behavior. As such, they support the Hellfire hypothesis.
- 2) However, the strengths of these relationships are quite weak, thus limiting the support for the hypothesis.
- 3) The relative effect of participatory salience (i.e., the importance of involvement in church activities) is somewhat more powerful than the effect of religiousness in predicting involvement in delinquency per se, vandalism, petty theft, grand theft, the use of hard drugs in general, and the use of stimulants, depressants, and psychedelics.
- 4) On the other hand, religiousness is a stronger predictor of involvement in motor vehicle theft, assault, weapon use, and the use of narcotics.
- 5) The overall predicted probabilities of involvement in both general and offense specific delinquency, and the use of hard drugs is substantially less for the strongly religious (i.e., those adolescents who claim to be "quite religious" and for whom participation in church activities is "very important") than for the weakly religious (i.e.,

those who report minimum values of religiousness and participatory salience). These findings provide the strongest support for the Hellfire hypothesis.

- 6) Values of the partial correlation coefficients for participatory salience tend to decrease in strength as offense severity increases. Likewise, the risk factors also tend to decrease as offense severity increases. Both of these trends suggest that the effects of religiosity may wane as offense severity, and therefore, societal consensus, increase. Such findings are consistent with the arguments of Middleton and Putney (1962) and Burkett and White (1974) and lend some support to the Anti-asceticism hypothesis, a modification of the original Hellfire hypothesis. It to tests of this modified hypothesis to which I now turn.

CHAPTER SIX  
TESTS OF THE MIDDLETON AND PUTNEY  
ANTI-ASCETICISM HYPOTHESIS

The original Hellfire hypothesis of Hirschi and Stark has been modified by arguing that it applies to a more restricted range of deviant behavior. That is, religiosity is more strongly related to "immorality," "vice," and "victimless" behaviors such as premarital sex and the use of marijuana and alcohol, which are not as consistently disapproved of in the secular setting, than to personal or property crimes (Burkett and White, 1974; Albrecht et al., 1977; Anderson and Wakefield, 1983; Elifson et al., 1983). As noted earlier, the norms against offenses of morality have been called ascetic norms and this modification has been referred to as the Anti-asceticism hypothesis ( $H_2$ ). The statistical information reported in Tables 6 through 9 of Appendix D is similar to that presented in the previous chapter.

Religiosity and Premarital Sex

Model 1 of Table 6 presents the results of a logistic regression analysis testing the Anti-asceticism hypothesis with a dichotomous indicator of self-reported involvement in premarital sexual intercourse. These findings provide some

support for the hypothesis in that religiosity is inversely related to premarital sex. That is, both of the religiosity variables are inversely related to involvement in premarital sex ( $b_k = -.329$  for religiousness and  $-.169$  for participatory salience).

These coefficients suggest that the odds of involvement in premarital sexual intercourse are multiplied by  $\exp(-.329) = .72$  for every one-unit increase in religiousness; therefore, the odds of premarital sex are estimated to be  $.72^3 = .37$  times as high for the "quite religious" as for the "not religious at all." For each one-unit increase in participatory salience, the odds of premarital sexual involvement are multiplied by  $\exp(-.169) = .84$ . Thus, for those adolescents for whom involvement in church activities is "very important" the odds of premarital sex are  $.84^3 = .60$  as high as they are for those youth for whom involvement in church activities is "not important at all."

For each one-unit increase in religiousness, the proportional change in the predicted probability of involvement in premarital sex decreases by 7.3 percentage points ( $P_k = -.073$ ). Thus, for adolescents who report that they are "quite religious," the proportional probability of involvement in premarital sexual intercourse is about 22 percentage points less than that for youth who are "not religious at all." Likewise, the proportional change in the predicted probability of premarital sex for each one-unit

increase in participatory salience is  $-.038$ . This figure converts into an 11.4 percentage point difference in the likelihood of premarital sex between those youth for whom participation in church activities is "very important" and those for whom such participation is "not important at all."

The overall predicted probability of involvement in premarital sexual intercourse for the strongly religious is only .18, while for the weakly religious, the predicted probability is .50. The difference between these predicted probabilities is .32 with the weakly religious almost three times (2.8) more likely to report involvement in premarital sex.

Though these findings show that the effects of religiosity on premarital sexual intercourse are both statistically discernible from zero and are in the hypothesized direction, the relative strength of these effects is quite weak. Indeed, the partial correlations ( $R_k$ ) between the two religiosity measures and the dichotomous premarital sex index are only  $-.098$  and  $-.042$ , respectively, for religiousness and participatory salience. Thus, while the data suggest that religiosity does serve to reduce the likelihood of involvement in premarital sexual intercourse among adolescents, its effect is quite weak.

Religiosity and Marijuana Use

Model 2 in Table 6 of Appendix D reports the findings of the logistic regression analysis testing the Anti-asceticism hypothesis on adolescent marijuana use. Again the support for the hypothesis is mixed; although increases in religiosity are significantly related to decreases in the likelihood of use, the relative effects of the religiosity indicators are weak.

Each of the religiosity measures is inversely related with the self-reported marijuana use ( $b_k = -.331$  for religiousness and  $-.458$  for participatory salience). Thus, the odds of marijuana use are multiplied by  $\exp(-.331) = .72$  and  $\exp(-.458) = .63$  for every one-unit increase in religiosity and participatory salience, respectively. As such the odds of marijuana use are  $.72^3 = .37$  times as high for "quite religious" adolescents as for those who are "not religious at all." Likewise, for youth who report maximum levels of participatory salience, the odds of marijuana use are  $.63^3 = .25$  times as high as for those reporting minimum levels.

When these logistic regression coefficients are transformed into instantaneous rate of coefficients evaluated at the mean of the dependent variable, the resulting proportional changes in the predicted probability of marijuana use indicate that one-unit increases in the religiosity variables result in 8.1 and 11.2 percentage point decreases in the likelihood of use. That is, each

one-unit increase in religiousness leads to 8.1 and 11.2 percentage point decreases in the predicted probability of marijuana use among the youth surveyed. Thus, adolescents who indicate that they are "quite religious" are 24.3 percentage points less likely to use marijuana than youth who report being "not religious at all."

One-unit increases in the importance of participation in church activities is related to 11.2 percentage point decreases in the predicted probability of use. For those youth for whom such participation is "very important," the predicted proportional probability of self-reported marijuana use is 33.6 percentage points less than that for whom participation in church activities is "not important at all." The cumulative effect of these religiosity indicators is such that the weakly religious are four times more likely to report marijuana use than are strongly religious adolescents. The overall predicted probabilities of use,  $P(Y=1)$ , are .69 and .17, respectively, for the weakly and strongly religious. In sum, increases in religiosity are significantly related to decreases in the likelihood of marijuana use, providing modest support for the Anti-asceticism hypothesis.

#### Religiosity and Alcohol Use

Logistic regression analyses testing the Anti-asceticism hypothesis with measures of self-reported alcohol use are presented in Models 3 through 6 of Table 6. The

first of these models examines the effects of the two religiosity indicators on the use of alcohol in general; Models 4, 5, and 6 test these effects on the use of beer, wine, and liquor, respectively. The results reported in these models yield mixed support for the Anti-asceticism hypothesis.

The effect of the religiousness variable is statistically discernible from zero only in Model 6, the use of liquor. The strength of this effect, however, is quite weak ( $R_k = -.049$ ). The partial correlation coefficients for the religiousness variable indicate that it has virtually no effect on the general use of alcohol ( $R_k = -.000$ ), and essentially no effect on the use of either beer or wine ( $R_k = -.024$  and  $.000$ , respectively). Participatory salience, on the other hand, attains a weak, inverse effect on each of the indicators of alcohol use with the exception of wine ( $R_k = -.08$  to  $-.14$ ). The null finding with regard to the use of wine may be due to the fact that wine is frequently consumed during religious ceremonies such as communion. The liturgical use of wine may result in higher than expected rates of use among the strongly religious.

However, the multiplicative effect on the odds of alcohol consumption for the participatory salience measure indicates that its influence is quite substantial. The odds of alcohol use, per se, are estimated to be  $[\exp(-.541)]^3 = .20$  times as high for youths reporting maximum participatory salience as for youth placing minimum



importance on participation in church activities. Similar odds are estimated for the use of beer,  $[\exp(-.517)]^3 = .21$ , and the use of liquor,  $[\exp(-.403)]^3 = .30$ .

Likewise, the instantaneous rate of change coefficients ( $P_k$ ) for participatory salience also suggests that its influence on alcohol use may be greater than these partial correlation statistics indicate. For instance, each one-unit increase in participatory salience is related to an 8.1 percentage point decrease in the predicted probability of general alcohol consumption. This translates into a difference of -24.3 percentage points in the probability of use predicted for those adolescents for whom participation in church activities is "very important" compared to those for whom such activities are "not important at all." Similar proportional effects are observed between participatory salience and both the use of beer and liquor ( $P_k = -.078$  and  $-.085$ , respectively). The proportional effect of participatory salience on the use of wine is half of that of its effects on the other alcoholic beverage types ( $P_k = -.047$ ).

The most telling evidence in support of the Anti-asceticism hypothesis is shown not in the separate, independent effects of the two religiosity variables, but rather in their combined or cumulative effect. In each of the four models examined, strongly religious adolescents have an overall predicted probability of use that is substantially less than for the weakly religious. The

probability of alcohol use among weakly religious youth is quite high--between .84 and .93. For the strongly religious, these probabilities are much lower, ranging from .51 for the use of liquor to .74 for the use of wine. The differences in these predicted probabilities of use between the strongly and the weakly religious range between .10 for wine and .35 for liquor. With the exception of wine, which may be used liturgically, these differences indicate that the weakly religious are at least 20% more likely to use alcohol than the strongly religious. These comparisons are, of course, evaluated at the means of the control variables.

In sum, the inverse effects of the religiosity indicators on anti-ascetic behavior (i.e., premarital sexual intercourse and the use of marijuana and alcohol) are notable and their cumulative effect is such that the strongly religious adolescents are substantially less likely to engage in such behaviors than are youth who are weakly religious. While these findings provide support for the Anti-asceticism hypothesis, they are equally supportive of the original Hellfire hypothesis. That is, religiosity has been shown to be inversely related to a large variety of deviant behaviors including violations of both secular and ascetic norms. Only by comparing the results presented here with those from the analyses testing the Hellfire hypothesis can a true test of the arguments of Middleton and Putney be made. If the claims of those espousing the Anti-asceticism

argument are true, than the effects of religiosity should be stronger for violations of ascetic norms than the more serious and consistently disapproved delinquent behaviors. It is to such a comparison that I now turn.

A Comparison of the Effects of Religiosity on  
Delinquent and Anti-Ascetic Behaviors

Table 7 of Appendix D presents the partial R statistics for the effects of both religiousness and participatory salience on delinquent and anti-ascetic deviant behaviors. The Anti-asceticism hypothesis that the effect of religiosity is greater for violations of ascetic norms than for violations of more widely held norms is not supported by these data. The relative effects of the religiosity variables are very stable across both anti-ascetic behaviors and other forms of adolescent deviance. In fact, there is some indication that religiosity is a less effective restraint on anti-ascetic behaviors than on hard drug use and delinquency. That is, the religiousness variable has no effect ( $R_k = -.000$ ) on the use of alcohol, and the weakest partial correlation coefficient for participatory salience is with premarital sexual intercourse ( $R_k = -.042$ ); both are indicators of anti-ascetic behavior.

Additional evidence counter to the Anti-asceticism hypothesis can be found in a comparison of the risk factors reported in Table 8 of Appendix D. Larger risk

factor values are associated with the delinquent behavior measures than with the indicators of anti-ascetic behavior. These values suggest that the weakly religious are only between 1.3 and 4.0 times more likely than the strongly religious to engage in behaviors that violate ascetic norms, but are 4.4 to 14.0 times more likely to engage in behaviors that are more consistently disapproved of. As such, the greatest differences between the strongly and the weakly religious occur in behaviors where normative ambiguity is the least and social disapproval is the greatest. These findings are, of course, quite contrary to what is predicted by the Anti-asceticism hypothesis. Thus, while some evidence from Chapter Five hinted at support for the arguments of Middleton and Putney (1962) and Burkett and White (1974), the results of these analyses reveal no support for the Anti-asceticism hypothesis beyond that which is also equally supportive of the original Hellfire hypothesis of Hirschi and Stark. Higher religiosity acts as an insulator against all forms of adolescent deviance; for none is it a highly effective insulator, but it works equally in predicting delinquent acts and hard drug use as well as the anti-ascetic offenses of morality.

#### Religiosity, Personal Asceticism, and Marijuana Use

Model 1 of Table 9 in Appendix D presents the findings of analyses testing Burkett's revision of the Anti-asceticism hypothesis ( $H_{2a}$  and  $H_{2b}$ ) with data on adolescent

marijuana use. According to Burkett (1977; 1980), religiosity has both a direct inverse effect and an indirect inverse effect on anti-ascetic behavior. The indirect effect is said to be mediated through a religiously based morality of personal asceticism. The results of the analyses examined here fail to support Burkett's claims.

First, religiosity is not related to personal asceticism. The effects of both of the religiosity measures on personal asceticism are essentially zero ( $R_k = -.023$  for religiousness and  $.000$  for participatory salience), second, personal asceticism is not related to marijuana use ( $R_k = -.020$ ). In fact, the only notable effect observed is the direct inverse effect of participatory salience on self-reported marijuana use ( $b_k = -.461$ ). Third, estimates of the direct effect of religiousness and participatory salience remain essentially unchanged with the addition of these measures to the model. That is, the logistic regression coefficients for religiousness and participatory salience are essentially identical in both models (i.e.,  $b_k = -.331$  versus  $-.334$  for religiousness and  $-.458$  versus  $-.461$  for participatory salience) indicating no change in their direct influence on the odds with the inclusion of the personal asceticism measure and its controls. Likewise, the partial R statistic ( $R_k$ ) for the relative influence of participatory salience on marijuana use is  $-.130$  in both the model with and the model without these extra variables. The relative effect of religiousness increases only from  $-.097$  to  $-.098$ .

The instantaneous rate of change coefficients for the two religiosity variables also remain unchanged by the inclusion of these additional measures ( $P_k = -.081$  for religiousness and  $-.112$  for participatory salience in each model). Finally, the overall predicted probability of marijuana use among strongly religious adolescents (now defined as those adolescents who indicate maximum values on both of the religiosity indicators as well as on the personal asceticism variable) decreases by only  $.02$  (from  $.17$  to  $.15$ ). The probability of use predicted for the weakly religious (also redefined as those adolescents who report minimum values of religiosity and personal asceticism) increases by only  $.03$  (from  $.69$  to  $.72$ ). The conclusion generated from each of these findings is that Burkett's claim for the inclusion of a measure of religiously based personal asceticism into the Anti-asceticism model receives no support from these data on adolescent marijuana use.

#### Religiosity, Personal Asceticism, and Alcohol Use

The same conclusion regarding Burkett's revision of the Anti-asceticism hypothesis is reached when the data on adolescent alcohol use are examined (See Model 2 in Table 9). Neither measure of religiosity is related to personal asceticism ( $R_k = -.000$  for both). However, personal asceticism does show a notable inverse effect on alcohol use ( $b_k = -.404$ ). The direct effects of the religiosity

indicators, on the other hand, remain unchanged ( $R_k = -.000$  for religiousness in both models, and  $-.142$  versus  $-.143$  for participatory salience). Likewise, the instantaneous rate of change coefficients ( $P_k$ ) remain stable across both models. Finally the predicted probability of use among the weakly religious is .93 in both models, while the probability of use predicted for the strongly religious decreases from .69 to .60. This decrease of .09 in the predicted probability among the strongly religious provides some support for Burkett's claims; however, the cumulative evidence presented here fails to support his arguments.

### Conclusions

The tables discussed in this chapter have served as tests of both the Anti-asceticism hypothesis and Burkett's revision of this hypothesis (1977; 1980). The results of these tests support the Anti-asceticism hypothesis but give little comfort to Burkett's revision. The data fit the original Hellfire hypothesis equally as well as the Anti-asceticism hypothesis. Some of the more specific conclusions drawn from these analyses are

- 1) With the exception of the effect of religiousness on the general use of alcohol and the use of beer and wine specifically, both religiosity variables are inversely related with the indicators of anti-ascetic behavior. These findings support the Anti-asceticism hypothesis.
- 2) However, all of the religiousness effects are weak (i.e.,  $R_k < -.100$ ). The strength of the relative effects of participatory salience on premarital

sexual intercourse and on the use of wine are also weak. More moderate effects (i.e.,  $-.100 < R_k < -.250$ ) of participatory salience are observed for the remaining measures of anti-ascetic behavior. The weak or modest nature of these religiosity effects serves to limit the support provided to the Anti-asceticism hypothesis.

- 3) The overall predicted probability estimates,  $P(Y=1)$ , indicate sufficiently large differences (i.e., greater than .20) between the weakly religious and the strongly religious in terms of involvement in premarital sexual intercourse and the use of marijuana, alcohol in general, and wine. Smaller differences between predicted probabilities are observed for the use of beer and liquor. These findings also provide limited support for the Anti-asceticism hypothesis.
- 4) The above conclusions provide mixed support for the Anti-asceticism hypothesis. They also provide equally limited support to the original Hellfire hypothesis. However, none of these findings provide a true test of the Anti-asceticism hypothesis. Only by comparing the results reported in this chapter with those in Chapter Five can an appropriate test of the Anti-asceticism hypothesis be made. The strengths of the relative effects of the religiosity indicators are very stable over all forms of deviant behavior analyzed. Therefore, the effects of religiousness and participatory salience are not greater on behaviors that violate ascetic norms as claimed by Middleton and Putney (1962) and Burkett and White (1974). Additional evidence of nonsupport for the Anti-asceticism hypothesis is observed in a comparison of the risk factors. Larger values are associated with the delinquent behaviors. The result of these comparisons provides no support for the Anti-asceticism hypothesis.
- 5) Finally, Burkett's suggestion that the Anti-asceticism hypothesis be revised by the addition of indirect religiosity effects mediated through a religiously based morality of personal asceticism receives no support with these data. The religiosity measures are not related to personal asceticism and personal asceticism fails to attain a statistically significant, inverse effect on anti-ascetic behavior. In addition, essentially no changes are observed in the parameter estimates



of the religiosity measures (i.e.,  $b_k$ ,  $p_k$ , and  $R_k$ ) and no significant improvements in the predictive capacities of the estimated models (i.e.,  $R_L$  and  $P(Y=1)$ ) are evidenced.

CHAPTER SEVEN  
TESTS OF THE JENSEN AND ERICKSON NORM  
QUALITIES HYPOTHESIS

Each of the analyses examined so far have been restricted to simple social-psychological models which stress the constraining function of religiosity on deviant behavior. Though these models are based on reasonable hypotheses, the empirical support provided to them has been somewhat limited. This may be due, in part, to specification error. That is, these hypothetical models limit analysis to an overly simplistic process, perhaps they should incorporate more structural or group-level processes.

For instance, Jensen and Erickson (1979) argue that one of the major shortcomings of the extant literature is the failure of previous researchers to examine the differential effects of religiosity across religious affiliations. Indeed, a majority of the prior research has failed to consider the possibility of an interaction between religious affiliation and religiosity on deviant behavior. Jensen and Erickson claim that the varying moral messages of different religions constitute important normative climates which affect the deterrent impact of religiosity on anti-ascetic

behaviors, particularly substance use. Thus, while some denominations take a strong proscriptive stand against use, others are more prescriptive, and, according to Jensen and Erickson, the religiosity effect is stronger among those from proscriptive normative climates.

The analyses reported in this chapter test the primary hypothesis derived from these ideas (referred to as the Norm Qualities hypothesis  $H_3$ ); first with marijuana use as the dependent variable, then with alcohol use. Logistic regression models testing the effects of religiousness, participatory salience, and personal asceticism are presented for each level of both attributed and perceived denominational proscriptiveness (prescriptive and proscriptive). The results of these tests for marijuana use are reported in Table 10, and for alcohol use in Table 11 of Appendix E.

Marijuana Use: Attributed Denominational  
Proscriptiveness

Models 1 and 2 of Table 10 present the findings of analyses testing the effects of religiosity and personal asceticism on self-reported marijuana use across levels of attributed denominational proscriptiveness. Comparing the results in Model 2 to those in Model 1 (i.e., comparing the attributed proscriptive denominations model to the attributed prescriptive denominations model) provides the

statistical evidence needed to test the Norm Qualities hypothesis. Comparisons of the statistical data in Table 10 provide little support for the hypothesis.

For instance, the independent effects of the personal asceticism and both of the religiosity variables are inversely related to marijuana use for those adolescents belonging to prescriptive denominations (Model 1); however, only the inverse effect of participatory salience is statically discernible from zero for those youth from denominations which traditionally have held proscriptive norms toward sensual indulgences (Model 2). Likewise, the relative effects of these variables are just as strong or stronger in the prescriptive model as they are in the proscriptive model (i.e., in the attributed prescriptive model versus the attributed proscriptive model,  $b_k = -.411$  vs.  $-.098$ , respectively, for religiousness;  $-.444$  vs.  $-.476$  for participatory salience; and  $-.425$  vs.  $.210$  for personal asceticism). Thus the odds of marijuana use are estimated to be  $[\exp(-.411)]^3 = .29$  times as high for the "quite religious" as for the "not religious at all" from attributed prescriptive denominations (Model 1) compared to a multiplicative effect on the odds of  $[\exp(-.098)]^3 = .74$  for those youths belonging to denominations traditionally attributed as proscriptive (Model 2). For participatory salience, these estimates are more similar (i.e.,  $[\exp(-.444)]^3 = .26$  in the prescriptive model versus  $[\exp(-.476)]^3 = .25$  in the proscriptive model). Finally, a very large difference

contrary to that predicted by the Norm Qualities hypothesis is observed in a comparison of the multiplicative effects on the odds for the personal asceticism variable in these models. That is, while the odds of marijuana use are, as expected, much lower for the ascetic youth than for the non-ascetic youth in the prescriptive model (Model 1), the odds of use for ascetic youth in the proscriptive model (Model 2) are greater than that estimated for the non-ascetic youth (i.e.,  $\exp(-.425) = .65$  versus  $\exp(.210) = 1.23$ ). The instantaneous rate of change coefficients ( $P_k$ ) also suggest that greater proportional reductions in the predicted probabilities of use are associated with the religion variables in the prescriptive model than in the proscriptive model.

These findings are, of course, contrary to that predicted by the Norm Qualities hypothesis. The cumulative effect of these variables also provides little support for the hypothesis. While the overall predicted probability of marijuana use for the weakly religious is smaller for those youth from proscriptive denominations-- $P(Y=1) = .54$  versus  $.73$ --and is consistent with the Norm Qualities hypothesis, the predicted probabilities of use for the strongly religious fail to support the hypothesis. That is, strongly religious adolescents from proscriptive denominations are more likely to use marijuana than those from prescriptive denominations-- $P(Y=1) = .21$  and  $.12$ , respectively. The differences in the predicted

probabilities of use between the weakly and strongly religious when evaluated at the means of the control variables are greater for those from prescriptive denominations (.61) than for those from denominations attributed to be proscriptive (.33). Likewise, a larger risk factor value is associated with denominational prescriptiveness (i.e., risk factors = 6.1 and 2.6, respectively for Models 1 and 2).

In sum, these data on the normative orientations of the various religious affiliations (as traditionally attributed to them) fail to support the Norm Qualities hypothesis. In fact, each of the comparisons made suggests that the impact of religiosity and personal asceticism on marijuana use is greater for those adolescents with prescriptive denominational affiliations, rather than for those from proscriptive denominations as the Norm Qualities hypothesis would predict.

Marijuana Use: Perceived Denominational  
Proscriptiveness

Models 3 and 4 of Table 10 present the statistical data necessary for a second test of the Norm Qualities hypothesis on adolescent marijuana use. The comparisons made here are based on proscriptive/prescriptive denominational groupings measured by the respondents' perceptions of the normative orientation of their religious affiliations. Unlike the data on attributed norm qualities these comparisons based on

perceived norm qualities yield some support for the Norm Qualities hypothesis. That is, the relative effect of personal asceticism is greater among those youth belonging to denominations that are perceived to be proscriptive

In Model 3 of Table 10, the perceived denominational prescriptiveness model, all three of the religion variables are inversely related to marijuana use ( $b_k = -.364$  for religiousness,  $-.457$  for participatory salience, and  $-.164$  for personal asceticism); however, personal asceticism does not have a statistically significant effect. For those who perceive the moral climate of their religious denomination toward marijuana use as proscriptive (Model 4), personal asceticism is inversely related to use ( $b_k = -1.858$ ), so are the two religiosity variables ( $b_k = -.022$  and  $-.163$  for religiousness and participatory salience, respectively), but the effects of the religiosity measures are not statistically distinguishable from zero. Thus the religious variables that affect adolescent marijuana use vary by perceived denominational proscriptiveness.

Likewise, the effectiveness of these measures varies by perceived denominational proscriptiveness. That is, when cross-model comparisons are made, stronger relative effects are observed for the two religiosity measures in Model 3 (perceived prescriptiveness) than in Model 4 (perceived proscriptiveness), but the relative effect of personal asceticism is stronger in the proscriptive model (Model 4). These findings suggest that the deterrent effect of

religiosity, per se, on marijuana use is stronger among those youth who do not perceive their religion taking a strong proscriptive stand. However, where the normative orientation of one's religion is perceived to be proscriptive, personal asceticism has the strongest deterrent impact. Thus, both the variables that affect marijuana use and their relative effects vary across levels of perceived denominational proscriptiveness. Therefore, these comparisons provide mixed support for the Norm Qualities hypothesis.

This mixed support is also evident in a comparison of the combined or cumulative effect of these measures across models. The smallest predicted probability of marijuana use is .13 for the strongly religious in the proscriptive model (Model 4) and the greatest probability of use is .69 for the weakly religious in the prescriptive model (Model 3). These probability rankings are consistent with that predicted by the Norm Qualities hypothesis. However, the predicted probability of use for the strongly religious in the prescriptive model is essentially equal to that in the proscriptive model (i.e.,  $P(Y=1) = .14$  and  $.13$ ). Likewise, the risk factor values for both models are nearly identical (4.9 and 4.8 for Models 3 and 4 respectively) and the difference in the predicted probability of use between the weakly and strongly religious in the prescriptive model is larger than the difference in the proscriptive model (.55 versus .49). These results are counter to that expected by



the Norm Qualities hypothesis and serve to limit the support provided to it by these data.

Alcohol Use: Attributed Denominational  
Proscriptiveness

The effects of religiosity and personal asceticism on self-reported alcohol use across levels of attributed denominational proscriptiveness provide yet another test of the Norm Qualities hypothesis and are presented in Models 1 and 2 of Table 11 in Appendix E. Unlike the findings for marijuana use the findings on alcohol use provide rather solid support for the Norm Qualities hypothesis. While participatory salience is the only religion variable in either model to be significantly related to alcohol use ( $b_k = -.045$  in Model 1 and  $-.211$  in Model 2), the relative effects of all three religion variables are greater in the proscriptive model (Model 2). For instance,  $b_k = -.045$  for religiousness in the attributed prescriptive model (Model 1) indicates that the odds of alcohol use are multiplied by only  $\exp(-.045) = .96$  for every one-unit increase in religiousness, while in the proscriptive model (Model 2), the multiplicative effect on the odds of use is somewhat stronger at  $\exp(-.211) = .81$ . Thus, the odds of alcohol use are estimated to be  $.96^3 = .87$  times as high for the "quite religious" as for the "not religious at all" in prescriptive denominations. The odds of use estimated for "quite religious" adolescents belonging to denominations

traditionally attributed as proscriptive are  $.81^3 = .53$  times as high as the odds estimated for those adolescents from proscriptive denominations who are "not religious at all."

Within the prescriptive model (Model 1), a one-unit increase in participatory salience is estimated to have an  $\exp(-.350) = .70$  multiplicative effect on the odds of alcohol use, while within the proscriptive model (Model 2), its multiplicative effect is much more powerful (i.e.,  $\exp(-.535) = .59$ ). These effects translate into estimated odds of alcohol use that are  $.70^3 = .35$  (in Model 1) and  $.59^3 = .20$  (in Model 2) times as high for those adolescents for whom participation in church activities is "very important" as for those youth who feel such involvement is "not important at all." Thus, the inhibitory effect of participatory salience, like that of religiousness, is stronger in the proscriptive model (Model 2). The effect of personal asceticism on alcohol use is also more powerful in the proscriptive model (i.e.,  $\exp(-.560) = .57$  in Model 2 versus  $\exp(-.380) = .68$  in Model 1).

The instantaneous rate of change coefficients indicate similar effects. For adolescents from prescriptive denominations, each one-unit increase in religiousness is associated with a 4.2 percentage point decrease in the predicted probability of alcohol use. For youth from denominations that are more prescriptive in their stands on

alcohol consumption, the proportional decrease in predicted probability for each one-unit increase in religiousness is only 0.5 percentage points. Thus, teens from proscriptive denominations who are "quite religious" are 12.6 percentage points less likely to use alcohol than are those who are "not religious at all," while almost no change in the predicted proportional probability of use can be observed between those adolescents from prescriptive denominations who are "quite religious" and those who are "not religious at all."

Likewise, within proscriptive denominations, each one-unit increase in participatory salience results in a 10.7 percentage point decrease in the predicted probability of use. As such, adolescents for whom involvement in church activities is "very important" are 32.1 percentage points less likely to use alcohol than are those for whom such participation is "not important at all." However, among adolescents belonging to prescriptive denominations, a one-unit increase in participatory salience is associated with only a 4.2% decrease in the proportional probability of use which translates into a 12.6 percentage point difference between those youth at maximum and minimum levels of participatory salience.

Finally, the instantaneous rate of change coefficients for personal asceticism also indicate a stronger effect in the proscriptive model than in the prescriptive model. That is, youth from proscriptive

denominations who define alcohol use proscriptively have a predicted probability of use that is 11.2 percentage points less than that of adolescents also from proscriptive denominations but who hold prescriptive beliefs. The proportional difference in the predicted probability of use between prescriptive and proscriptive teens belonging to prescriptive denominations is much less (4.7 percentage points).

However, cross-model comparisons of the partial correlation coefficients for the relative effects of these three variables indicate small differences (i.e.,  $R_k = -.000$  versus  $-.000$  for religiousness,  $-.082$  versus  $-.130$  for participatory salience, and  $-.011$  versus  $-.013$  for personal asceticism in Models 1 and 2, respectively). In sum, however, nearly every comparison the independent effects of religiosity and personal asceticism on alcohol use are only slightly stronger in the proscriptive model (Model 2) than in the prescriptive model (Model 1). As such, they provide some support for the Norm Qualities hypothesis.

Additional support for the hypothesis is evident in comparisons of the cumulative impact these religion variables have on adolescent alcohol use. Those adolescents most likely to use alcohol are weakly religious and belong to prescriptive denominations ( $P(Y=1) = .93$ ); those least likely to use alcohol are strongly religious and are members of proscriptive denominations ( $P(Y=1) = .38$ ). The predicted probability of use for the weakly religious is nearly

identical in both models (.93 versus .91), yet the probability of use predicted for the strongly religious is far greater for those from prescriptive denominations than from proscriptive denominations (.74 versus .38). As the Anti-asceticism hypothesis undergoes revision and respecification leading to the Norm Qualities hypothesis, the predicted probability of alcohol use for the weakly religious remains stable at about .93. However, the predicted probability of use for the strongly religious, originally estimated at .69, reduces down to .60 under Burkett's revision, and reduces further to .38 when estimated for those adolescents belonging to denominations that traditionally take a strong stand against alcohol use.

In sum, solid support for the Norm Qualities hypothesis is provided by these data on adolescent alcohol consumption. The strength of both the independent and the combined effects of the religiosity and personal asceticism variables on self-reported alcohol use increase as attributed denominational proscriptiveness increases.

Alcohol Use: Perceived Denominational  
Proscriptiveness

This support for the Norm Qualities hypothesis is compromised when measures of perceived denominational prescriptiveness and proscriptiveness are used. The findings reported in Models 3 and 4, in fact, run directly counter to the Norm Qualities hypothesis. That is, the

effects of religiosity and personal asceticism on adolescent alcohol use is stronger under perceived prescriptive denominational norms (Model 3) than under perceived proscriptive denominational norms (Model 4). This finding may be due, in part, to the skewed distribution of the perceived denominational proscriptiveness variable which resulted in an n of only 137 subjects for the proscriptive model. Perhaps the findings would be different had a larger sample been available for analysis.

### Conclusions

The four sets of comparisons presented in this chapter (see Table 12 of Appendix F) provide grounds for the following conclusions regarding the Norm Qualities hypothesis:

- 1) Both the independent and the combined effects of the three religion variables on self-reported adolescent marijuana use are as strong or stronger for those youth belonging to religious affiliations traditionally attributed to be prescriptive in normative orientations. These findings do not to support the Norm Qualities hypothesis.
- 2) When denominational proscriptiveness is measured by the subject's perception of their religion's normative stance regarding marijuana use, then support for the Norm Qualities hypothesis is somewhat mixed. Both the variables that affect adolescent marijuana use and the strength of their effects vary across levels of perceived denominational proscriptiveness. The deterrent impact of the two indicators of religiosity is stronger within religious affiliations perceived to be prescriptive, while personal asceticism deters use among those youth belonging to perceived proscriptive denominations.

- 3) Strong support for the Norm Qualities hypothesis is provided by the data on adolescent alcohol use when analyzed across levels of attributed denominational proscriptiveness. Nearly every comparison of the independent effects of religiosity and personal asceticism on alcohol use is stronger in the proscriptive model than in the prescriptive model. Likewise, comparisons of the cumulative impact of these variables also support the Norm Qualities hypothesis. While the predicted probability of use remains constant across models for the weakly religious, the probability of use for the strongly religious is substantially less for those adolescents belonging to proscriptive denominations than for those from prescriptive religions (i.e.,  $P(Y=1) = .38$  versus  $.74$ , respectively).
- 4) However, extremely little support for the Norm Qualities hypothesis is evident in these data on self-reported adolescent alcohol use when comparisons are made across levels of perceived denominational proscriptiveness.

Why is the support for the Norm Qualities hypothesis so varied? Why is the hypothesis supported for adolescent marijuana use when analyzed across levels of perceived denominational proscriptiveness but not for attributed denominational proscriptiveness? Why is the hypothesis so strongly supported for adolescent alcohol use when analyzed across levels of attributed denominational proscriptiveness but not when analyzed across levels of perceived denominational proscriptiveness? Perhaps the following tentative explanations will serve to answer these questions.

First, with regard to the findings on adolescent marijuana use, the prescriptive/proscriptive denominational attributions are based on the traditional stands these religious affiliations take regarding alcohol use. These

may not be wholly accurate attributions, for there really are no long-standing official doctrines relating specifically to marijuana use. Thus, the lack of support for the Norm Qualities hypothesis observed for marijuana use may be a function of inaccurate attributions of denominational norm qualities. However, it is quite likely that during the time of this survey (1977) many individual churches took an open and vigorous stand against adolescent marijuana use. Those adolescents who attended church when sermons were delivered, and Sunday school discussions were held, denouncing the use of marijuana were better able to accurately perceive the normative orientation of their church while those failing to attend were less accurate in their perceptions. Thus, accuracy in perception may be related to religiosity which, in turn, is inversely related to marijuana use. It may be such a spurious relationship that accounts for the support provided to the Norm Qualities hypothesis when analyzed across levels of perceived denominational proscriptiveness. Then again, perhaps the hypothesis is supported by these data simply because it is valid.

There is, on the other hand, a long tradition of official church doctrine regarding the use of alcohol (Chalfant et al., 1981; Salisbury, 1964). These prescriptive/proscriptive doctrines permit the clean and accurate attribution of normative orientation, and, in turn, provides perhaps the best test of the Norm Qualities



hypothesis. As such, the strong support for the hypothesis evidenced in these data is of no surprise. However, the complete lack of support provided to the hypothesis when evaluated across levels of perceived denominational proscriptiveness is more difficult to explain. Given the clarity and consistency of these religious doctrines on alcohol use, it is unlikely that the respondents would inaccurately perceive their church's stance. Therefore, measurement error in the perceived religious norm qualities variable is unlikely. Perhaps the lack of support is due to the highly skewed distribution of the perceived denominational proscriptiveness variable yielding an n of only 137 for the proscriptive model. A larger sample size may have resulted in better support for the hypothesis. These explanations are, of course, tentative and the possibility that these questions may be more suitably answered by alternative explanations remains open.

CHAPTER EIGHT  
TESTS OF THE STARK ET AL. MORAL COMMUNITIES  
HYPOTHESIS

The statistical information discussed in this chapter provides tests of the Stark et al. Moral Communities hypothesis ( $H_4$ ) discussed earlier. According to the arguments of Stark and his associates, the effects of religiosity and personal asceticism on anti-ascetic behavior are stronger in moral communities (i.e., where aggregate religiosity is high) than in communities with low aggregate religiosity. Thus, the Moral Communities hypothesis represents another case whereby the Anti-asceticism model has been modified by incorporating it into more of a structural-level model for analysis.

Aggregate Religiosity and Marijuana Use

Model 1 in Table 13 of Appendix F presents the results of a logistic regression analysis of the effects of religiosity and personal asceticism on self-reported adolescent marijuana use for those respondents who reside in communities characterized by low levels of aggregate religiosity (i.e., where 50% or less of the respondents indicate that they are "quite religious"). Model 2 reports similar statistical data for those youth who, on the other

hand, live in a moral community (i.e., a community with high aggregate religiosity; where a majority express that they are "quite religious"). Comparisons of the effects across model indicate that the effects of religiosity and personal asceticism on marijuana use do not vary by level of aggregate religiosity; therefore, no support for the Moral Communities hypothesis is observed.

In both Models 1 and 2 the effects of the three religion variables are quite similar. For instance, the multiplicative effects on the odds of marijuana use for each one-unit increase in religiousness in these two models are  $\exp(-.395) = .67$  and  $\exp(-.321) = .73$ , respectively. These translate into estimated odds of use for the "quite religious" that are  $.67^3 = .31$  (in Model 1) and  $.73^3 = .38$  (in Model 2) times as high as those for adolescents who are "not religious at all." The relative effects of participatory salience are even more similar (i.e.,  $\exp(-.434) = .65$  and  $\exp(-.459) = .63$  for Models 1 and 2, respectively). The effect of personal asceticism is also quite similar across models-- $b_k = -.244$  and  $-.304$ . The instantaneous rate of change coefficients for each religion variable are nearly equal across levels of aggregate religiosity (i.e.,  $P_k = -.097$  and  $-.078$  for religiousness,  $-.106$  and  $-.112$  for participatory salience, and  $-.060$  and  $-.074$  for personal asceticism in Models 1 and 2, respectively). Likewise, the partial correlation coefficients also indicate near identical effects across

models ( $R_k = -.108$  and  $-.090$ ,  $-.115$  and  $-.130$ , and  $-.000$  and  $-.000$ , respectively, for religiousness, participatory salience, and personal asceticism). Thus, while there are some differences between the low and high aggregate religiosity models, they are too slight to be considered supportive of the Moral Communities hypothesis.

The cumulative or combined effect of these variables also fails to support the Moral Communities hypothesis. The predicted probability of marijuana use,  $P(Y=1)$ , for the strongly religious is essentially identical across levels of aggregate religiosity  $-.13$  and  $.14$ . Likewise, identical predicted probabilities of use are observed for the weakly religious in both models (i.e.,  $P(Y=1) = .69$  and  $.70$ ). Thus, in no case are the effects of religiosity or personal asceticism substantially stronger for those residing in communities characterized by high aggregate religiosity. The Moral Communities hypothesis is not supported by these data.

#### Aggregate Religiosity and Alcohol Use

Models 1 and 2 of Table 14 in Appendix F present the results of analyses testing the Moral Communities hypothesis with data on adolescent alcohol use. The only religion variable to attain statistical significance in the high aggregate religiosity model (Model 2) is participatory salience and its relative effect is essentially no greater

in Model 2 than in Model 1 (i.e.,  $b_k = -.581$  versus  $-.459$ ,  $P_k = -.076$  versus  $-.075$  and  $R_k = -.146$  versus  $-.115$  for Models 1 and 2, respectively). In addition, the independent effect of personal asceticism is only slightly stronger in Model 2. Moreover, religiousness has a stronger relative effect in Model 1 rather than in Model 2. The combined effect of these three religion variables is also greater in Model 1. In fact, strongly religious adolescents who live in communities with high aggregate religiosity have a substantially greater predicted probability of use than those youth from communities characterized by low aggregate religiosity (i.e.,  $P(Y=1) = .63$  versus  $.56$ , respectively). For the weakly religious, the predicted probability of alcohol use is identical across levels of aggregate religiosity. Thus, the Moral Communities hypothesis is not supported by these data on adolescent alcohol use either.

### Conclusions

The independent and combined effects of religiousness, participatory salience, and personal asceticism on both adolescent marijuana and alcohol use are essentially no stronger for those from moral or high aggregate religiosity communities than for those from communities with low aggregate religiosity (see Table 15 of Appendix F). As

such, there is very little support in these data for the Moral Communities hypothesis.

## CHAPTER NINE

### TESTS OF THE MORAL COMMUNITIES-NORM QUALITIES HYPOTHESIS

Recall that the Stark et al. Moral Communities and the Jensen and Erickson Norm Qualities hypotheses have been combined into an integrated hypothesis which as the level of aggregate religiosity increases, and as the degree of denominational proscriptiveness increases, the size of the effects of religiosity and personal asceticism on anti-ascetic behavior increases. The tests of this Integrated Moral Communities-Norm Qualities hypothesis ( $H_5$ ) in this chapter are based on the statistical data presented in Table 16 of Appendix G for marijuana use and Table 18 for alcohol use.

#### Marijuana Use

Because the findings in Chapter Eight for adolescent marijuana use indicate that the Norm Qualities hypothesis is best supported by perceived, rather than attributed, denominational proscriptiveness, the test of the hypothesis presented here also employs perceived denominational proscriptiveness as the indicator of religious norm qualities. Aggregate religiosity is used as the measure of

"moral community." The combination of these two conditional variables results in a test of the hypothesis involving a comparison of the findings from four models (see Table 16 of Appendix G): Model 1--low aggregate religiosity and perceived denominational prescriptiveness; Model 2--low aggregate religiosity and perceived denominational proscriptiveness; Model 3--high aggregate religiosity and perceived denominational prescriptiveness; and Model 4--high aggregate religiosity and perceived denominational proscriptiveness. The logic of this integrated hypothesis would predict the strongest relative effects for Model 4, followed by Models 2 and 3, and the weakest relative effects for Model 1. Likewise, the predicted probability of use for the strongly religious should be lowest in Model 4 and highest in Model 1. As Table 17 in Appendix G indicates, these predictions are not supported by these data on adolescent marijuana use.

The strongest support for the hypothesis is evidenced in the relative effect of the personal asceticism variable and in the predicted probability of use for the strongly religious in which Model 4 (the high aggregate religiosity and perceived denominational proscriptiveness model) yields the most powerful effects. The predicted probability of use for the strongly religious in Model 4 is the lowest yet reported in these data and is approximately half that of the other probability coefficients reported in Models 1 through 3. The proportional effect ( $P_k$ ) of personal asceticism in



Model 4 is  $-.586$ , while in Model 1 it is only  $-.045$ . Likewise, the partial correlation coefficient ( $R_k$ ) for personal asceticism is  $-.154$  in Model 4 versus  $-.000$  in Model 1.

While these statistics offer some support for the Integrated Moral Communities-Norm Qualities hypothesis, the parameter estimates for the relative effects of the two religiosity variables contradict the hypothesis. That is, the relative effects of religiousness and participatory salience on adolescent marijuana use are stronger in Model 1 than in Model 4. Therefore, the integrated Moral Communities-Norm Qualities hypothesis receives at best only limited, marginal support from these data on adolescent marijuana use.

#### Alcohol Use

Whereas perceived denominational proscriptiveness was used with marijuana use, attributed denominational proscriptiveness is used as the indicator of religious norm qualities in this test of the hypothesis for adolescent alcohol use (see Models 1 through 4 in Table 18 of Appendix G). Table 19 of Appendix G shows that greater support for the hypothesis is evidenced when alcohol use is the dependent variable than when it is tested for marijuana use.

For instance, the relative effects ( $b_k$ ) of both participatory salience and personal asceticism are strongest in Model 4 and weakest in Model 1. For each one-unit increase in participatory salience in Model 4, the multiplicative effects on the odds of alcohol use is  $\exp(-.613) = .54$ . In Model 1, however, each one-unit increase in participatory salience results in only a  $\exp(-.149) = .86$  multiplicative effect. Thus, for those youth for whom participation in church activities is "very important," the odds of use are  $.54^3 = .16$  (for Model 4) versus  $.86^3 = .64$  (for Model 1) times as high as that for those for whom such participation is "not important at all." Likewise, the partial correlation coefficient for participatory salience in Model 4 is modest significant ( $R_k = -.118$ ). while for Model 1 it is zero ( $R_k = -.000$ ).

The effect on the odds of alcohol use for personal asceticism is  $\exp(-.686) = .50$  in Model 4 compared to only  $\exp(-.315) = .73$  in Model 1. Finally, while the overall predicted probabilities of use for the weakly religious are essentially the same in all four models (i.e.,  $P(Y=1)$  ranges from .92 to .95), the predicted probabilities of use for the strongly religious vary widely across models. Model 1 has the highest probability of use at .76, while the probability of use predicted for the strongly religious in Model 4 is much lower at .41. Thus, while the degree of support for the Integrated Moral Communities-Norm Qualities hypothesis

is far from complete, it is sufficient enough to lend it some credibility.

### Conclusions

Support for the Integrated Moral Communities-Norm Qualities hypothesis is quite limited. Nevertheless, enough evidence is observed with the data on adolescent alcohol use to keep the hypothesis from being dismissed outright.

## CHAPTER TEN

### SUMMARY AND DISCUSSION

Hirschi and Stark's Hellfire hypothesis asserts that religiosity is inversely related to deviant behavior. While their analysis did not support this hypothesis, subsequent researchers report findings consistent with the Hellfire argument (Rhodes and Reiss, 1970; Rohrbaugh and Jessor, 1975; Higgens and Albrecht, 1977; Albrecht et al., 1977; Jensen and Erickson, 1979; Tittle and Welch, 1983). However, a more thorough review of the extant literature regarding the effects of religiosity on deviant behavior reveals three theoretical modifications to the original Hellfire hypothesis. The first modification, which I label the Anti-asceticism hypothesis, is derived from the works of Middleton and Putney (1962) and Burkett and White (1974). This hypothesis respecifies the Hellfire hypothesis by limiting the range of deviant behaviors affected by religiosity to only those which violate ascetic norms (i.e., sensual indulgences such as premarital sex, gambling, and substance use, which are not consistently disapproved of in the secular setting). Support for this Anti-asceticism hypothesis is so widespread that it may be considered an empirical generalization (Bock et al., 1985).

However, even with the overwhelming consistency of research support, both the Anti-asceticism hypothesis and the original Hellfire hypothesis have been criticized by some sociologists because of the absence of a sound theoretical foundation. Responses to these criticisms have typically involved the incorporation of these two micro-level models into a more general framework. From these efforts come the next two modifications. The first, which I label the Norm Qualities hypothesis, is based on the work of Jensen and Erickson (1970) who claim that one of the most severe flaws of the two previous models is their failure to consider the possibility of an interaction between religiosity and religious affiliation on deviance. Their research, as well as that of others, has shown that the effect of religiosity on deviance does vary by denomination (Jensen and Erickson, 1979; Schlegel and Sanborn, 1979; Nelson and Rooney, 1982; Hadaway et al., 1982; Cochran and Bock, 1984; Bock et al., 1985; Cochran et al., 1986). The interpretations given to such findings have been described in terms of reference group theory (Bock et al., 1985; Cochran et al., 1986).

The second of these modifications is labeled the Moral Communities hypothesis and is derived from research conducted by Rodney Stark and his colleagues (Stark et al., 1980; 1982--see also Tittle and Welch, 1983). Deducing from Durkheim (1915), these authors claim that societies and

communities vary in the extent to which religion binds their members into a "moral community" (i.e., communities where religious influences permeate the culture and the social interactions of their members; where religion is an integral part of everyday life). They argue, in turn, that only in moral communities can religiosity function to prevent or deter deviant behavior. Thus, they stipulate an interaction effect between religiosity and moral community (indicated by aggregate religiosity) on deviant behavior. While their research supports these claims, the work of Tittle and Welch (1983) fails to support this respecification.

The last modification, not revealed in the literature but logically deducible from it, provides a third respecification of the original models by integrating the Norm Qualities and Moral Communities hypotheses. According to this hypothesis, the relationship between religiosity and deviant behavior is conditional upon both the normative orientation of the religious affiliation and the level of aggregate religiosity.

Each of these five hypotheses (i.e., the original Hellfire hypothesis of Hirschi and Stark, the Middleton and Putney Anti-asceticism hypothesis, the Jensen and Erickson Norm Qualities hypothesis, the Stark et al. Moral Communities hypothesis, and the integrated Moral Communities-Norm Qualities hypothesis) has been tested here with self-report data from a sample of approximately 3,000 male and female adolescents attending grades seven through

twelve in seven school districts in three mid-western states. The conclusions generated from these tests are presented below.

### Summary

#### The Hirschi and Stark Hellfire Hypothesis

Religiousness and participatory salience, the two indicators of religiosity, are nearly always inversely related with the indicators of serious deviant behavior such as vandalism, theft, assault, and the use of hard drugs. However, the strengths of these relationships are quite weak with partial correlation coefficients ( $R_k$ ) failing to exceed .15. The relative effect of participatory salience (i.e., the importance of involvement in church activities) are somewhat more powerful than that of religiousness in predicting involvement in delinquency per se, vandalism, petty and grand theft, and the use of hard drugs, particularly stimulants, depressants, and psychedelics. On the other hand, religiousness is a stronger predictor of involvement in motor vehicle theft, assault, weapon use, and the use of narcotics.

The overall predicted probabilities of involvement in both general and offense specific delinquency and the use of hard drugs is substantially less for the strongly religious (i.e., those adolescents who claim to be "quite religious" and for whom participation in church activities is "very

important") than for the weakly religious (i.e., those who report minimum values of religiousness and participatory salience). Thus, though the relative effects of the religiosity indicators are weak, their combined or cumulative effect is quite strong and provides solid support for the Hellfire hypothesis.

However, the values of the partial correlation coefficients which estimate the relative effect of the participatory salience variable tend to decrease in strength as offense seriousness increases. Likewise, the risk factors (i.e., how many times more likely the weakly religious are to report involvement in deviant behavior than the strongly religious) also tend to decrease as offense severity increases. Both of these trends suggest that the effects of religiosity wane as offense severity, and therefore, societal consensus, increases. Such findings are consistent with the arguments of Middleton and Putney (1962) and Burkett and White (1974), thus lending some support to the Anti-asceticism hypothesis.

#### The Middleton and Putney Anti-asceticism Hypothesis

With the exception of the effect of religiousness on the use of alcohol in general and beer and wine specifically, both religiosity variables show notable inverse relationships with the various indicators of anti-ascetic behavior. However, the relative effects of the



religiousness variable are weak (i.e.,  $R_k < -.100$ ). Likewise, the strength of the relative effects of participatory salience are also weak, though more moderate effects are observed for the partial correlation between participatory salience and the use of marijuana, beer, liquor, and alcohol in general (i.e.,  $-.100 < R_k < -.250$ ).

The instantaneous rate of change coefficients ( $P_k$ ) for the religiousness and participatory salience measures indicate that significant proportional reductions in the predicted probability of anti-ascetic behavior are associated with increases in religiosity. The overall predicted probability estimates,  $P(Y=1)$ , also indicate rather large differences between the weakly religious and the strongly religious in terms of involvement in premarital sexual intercourse and the use of both marijuana and alcohol (with the weakly religious more likely to engage in these behaviors).

While these findings provide some support for the Anti-asceticism hypothesis, they are also equally supportive of the original Hellfire hypothesis. Only by comparing these results with those from the tests of the Hellfire hypothesis can a "true" test of the Anti-asceticism hypothesis be made. Such comparisons indicate that the strengths of the relative effects of the religiosity indicators are very stable across all forms of deviant behavior analyzed. In addition, larger risk factor values are associated with behavior in violation of secular rather than ascetic norms. Thus, the effects of

religiousness and participatory salience are not stronger for behaviors that violate ascetic norms as claimed by Middleton and Putney (1962) and Burkett and White (1974). These comparisons, therefore, provide no support for the Anti-asceticism hypothesis.

Burkett (1977) has suggested that the Anti-asceticism hypothesis be revised to include both direct and indirect religiosity effects. The indirect effects are claimed to be mediated through a religiously based morality of personal asceticism. Tests of this revised Anti-asceticism model fail to support Burkett's argument. First, the religiosity variables are not related to personal asceticism. Second personal asceticism, in turn, is not related to anti-ascetic behavior. Thus, there is no evidence of an indirect religiosity effect mediated through a religiously based morality of personal asceticism. Furthermore, no differences are observed in the parameter estimates of the direct religiosity effects and no significant improvement in the predictive capacities of the estimated models is evidenced.

#### The Jensen and Erickson Norm Qualities Hypothesis

Both the independent and the combined effects of the three religion variables (i.e., religiousness, participatory salience, and personal asceticism) on self-reported marijuana use are as strong or stronger for those youth

belonging to religious affiliations traditionally attributed as prescriptive in their normative stand toward sensual indulgences than for those adolescents belonging to proscriptively attributed denominations. However, when denominational proscriptiveness is measured by the subjects' perception of their religion's normative orientation toward marijuana use, some support for the Norm Qualities hypothesis is observed. Both the variables that affect adolescent marijuana use and the strength of their effects vary across levels of perceived denominational proscriptiveness. The inhibitory capacities of the two religiosity measures are stronger within religious affiliations that are perceived to be prescriptive, while personal asceticism inhibits use among those youth belonging to religions that are perceived of as proscriptive.

When analyzed across levels of attributed denominational proscriptiveness, strong support for the Norm Qualities hypothesis is provided by these data on adolescent alcohol use. Nearly every comparison of the independent effects of the religiosity and personal asceticism variables on alcohol consumption is stronger, as predicted, in the proscriptive models than in the prescriptive model. Likewise, comparisons of the combined or cumulative impact of these variables also supports the hypothesis. While the predicted probability of use for the weakly religious remains stable across levels of attributed denominational proscriptiveness, the probability of use predicted for the

strongly religious is substantially less for those youth belonging to proscriptive denominations. However, virtually no support for the Norm Qualities hypothesis is observed in these data on self-reported alcohol use when comparisons are made across levels of perceived religious norm qualities.

Thus, the Norm Qualities hypothesis is supported only under the following conditions: for marijuana use, when religious norm qualities are measured according to respondent's perceptions, but not when measured by traditional attributions; for alcohol use, the opposite is true (i.e., support is provided only when attributed religious norm qualities are employed).

Why is the support so varied? The following are presented as possible or tentative explanations. The lack of support observed for marijuana use under the attributed religious norm qualities models may be due to inaccuracies in the attributions. Because there are no longstanding official religious doctrines relating to marijuana use, the attributions of normative orientations were based on the traditional stands these various religions take regarding sensual indulgences in general. Thus, these may not be wholly accurate attributions and the lack of support may, in turn, be due to this measurement error.

However, given the time of this survey (1977), it is quite likely that many individual churches took an open and vigorous stand against marijuana use. Those adolescents who attended church when sermons were delivered denouncing the

use of marijuana were better able to accurately perceive the normative messages of their church than those failing to attend. Thus, accuracy in perception may be a function of religiosity which accounts for the support these data on adolescent marijuana use provide for the Norm Qualities hypothesis when analyzed across levels of perceived denominational proscriptiveness.

There is, on the other hand, a long tradition of official church doctrines toward the consumption of alcohol and these doctrines permit the accurate attribution of normative orientations. As such, the strong support for the Norm Qualities hypothesis evidenced in these data on self-reported alcohol use is not surprising. However, the lack of support for the hypothesis when evaluated across levels of perceived denominational proscriptiveness is difficult to explain. Given the clarity and consistency of these religious doctrines on alcohol use, it is unlikely that the respondents would inaccurately perceive their church's stance. Therefore, measurement error in the perceived religious norm qualities variable can probably be ruled out. The lack of support may be due to the highly skewed distribution of this variable (e.g., only 137 respondents perceived their church to be proscriptive). Perhaps a larger sample size would have resulted in better support for the hypothesis. While these explanations are plausible, they are also tentative and the possibility that

more suitable alternative explanations exist remains very open.

### The Stark et al. Moral Communities Hypothesis

Comparisons of the independent and combined effects of the religiosity and personal asceticism variables on self-reported marijuana use for those youth who reside in communities characterized by low levels of aggregate religiosity (i.e., where fifty percent or less indicate that they are "quite religious") with youth who live within moral communities (i.e., those school districts with high aggregate religiosity; where a majority express that they are "quite religious") exhibit no support for the arguments of Stark and his associates (1980; 1982). Rather than observing stronger religious effects in the high aggregate religiosity model, these data reveal no variation in the strength of these relative effects across levels of aggregate religiosity. Likewise, the predicted probabilities of use for both the weakly and strongly religious remain stable across models. While the findings differ slightly for adolescent alcohol use, support for the Moral Communities hypothesis is, for the most part, also lacking. In sum, both the independent and combined effects of religiousness, participatory salience, and personal asceticism on both adolescent marijuana and alcohol use are essentially no stronger for those youth from communities

characterized by high levels of aggregate religiosity than for those from communities with low levels of aggregate religiosity. As such, these data provide almost no support for the Moral Communities hypothesis.

#### The Integrated Moral Communities-Norm Qualities Hypothesis

With regard to marijuana use, the strongest support for this integrated hypothesis is provided by the relative effect of personal asceticism and the probability of use predicted for the strongly religious in which the most powerful parameter estimates are observed for those youth from communities characterized by high aggregate religiosity and who belong to proscriptive denominations. However, contradictory evidence is presented regarding the relative effects of the two religiosity variables, in which stronger effects are reported for the low aggregate religiosity-prescriptive model. Therefore, these data on adolescent marijuana use provide only limited support, at best, for this integrated hypothesis.

Greater support, however, is evidenced when alcohol use is employed as the dependent variable. The proportional effects of both participatory salience and personal asceticism are consistent with the hypothesis, though statistical significance is not attained. In addition, the predicted probabilities of use for the strongly religious vary widely across the four comparison models with the

lowest likelihoods predicted in accordance with the hypothesis. Thus, while the degree of empirical support for this integrated hypothesis is far from impressive, it is sufficient enough to justify continued testing.

The Anti-Asceticism Hypothesis Revisited:  
A Brief Note

The Jensen and Erickson Norm Qualities hypothesis and the Stark et al. Moral Communities hypothesis were each introduced as modifications of the Anti-asceticism hypothesis (see Chapters Seven and Eight). Did the addition of the conditional statements provided by these respecifications improve the Anti-asceticism hypothesis? Table 20 in Appendix H reports the predicted probabilities of marijuana and alcohol use for each theoretical development of the original Anti-asceticism hypothesis (i.e., Burkett's revision and each of the three modifications: the Norm Qualities hypothesis, the Moral Communities hypothesis, and the integrated Moral Communities-Norm Qualities hypothesis).

Under the original Anti-asceticism hypothesis, the likelihood of marijuana use predicted for the strongly religious (i.e., those youth who are "quite religious" and for whom participation in church activities is "very important") is .17. With the inclusion of the personal asceticism measure (Burkett's revision), the predicted probability of marijuana use reduces down to .15 for the



strongly religious (now defined as those adolescents who are "quite religious," for whom participation in church activities is "very important," and who define marijuana use proscriptively). The respecifications of this latter model reduce the predicted probability of use even further: down to .13 for strongly religious youth who belong to religious affiliations perceived as proscriptive and .14 for those strongly religious adolescents who reside in communities characterized by high aggregate religiosity. In concert, these two modifications ultimately lead to a predicted probability of use for the strongly religious of only .07, a proportional reduction of 40% from the original model. Clearly, each theoretical development has improved upon the original hypothesis first argued by Middleton and Putney (1962).

On the other hand, while these modifications have served to improve the original hypothesis, it is also clear that the improvements are slight and that religiosity itself, independent of these modifications, is the primary factor impeding use. This is evidenced by the fact that the differences in the overall predicted probabilities of use between the strongly and weakly religious are quite stable across models, with only minor increases due to the slight impact of these theoretical modifications. The majority of these differences is a function of the independent influence of religiosity. For example, the difference in the predicted probability of marijuana use between weakly and

strongly religious adolescents in the original Anti-asceticism model (column 1 of Table 20) is .52; this difference increases to only .56 with information on the degree of denominational proscriptiveness (column 3). Thus, only .04 is due to differences in denominational proscriptiveness; the remaining .52 is a function of differences in religiosity.

These findings, with regard to marijuana use, suggest that the original Anti-asceticism hypothesis of Middleton and Putney appears to garner the greatest support with only limited and mixed support provided for the subsequent theoretical developments. The findings with regard to adolescent alcohol use, however, provide much greater support for these modifications and the reductions in the predicted probability of use for the strongly religious are noteworthy.

Originally predicted at .69, the likelihood of alcohol consumption among the strongly religious reduces to .60 under Burkett's revision, while the probability of use predicted for the weakly religious remains constant at .93. When analyzed across levels of attributed denominational proscriptiveness these data result in a predicted probability of use of .38, a decrease of .31 (.69-.38). The Moral Communities modification reduces the likelihood of use for the strongly religious to .56, while information on both the degree of denominational proscriptiveness and level of aggregate religiosity lowers the likelihood of use to .41

(an overall reduction of 28 points). Again, under each modification the predicted probability of use for the weakly religious holds constant at .93. Thus, each of these modifications improves the Anti-asceticism hypothesis by a significant amount.

In conclusion, the predicted probability of marijuana use is much greater for adolescents who are weakly religious than for those youth who are strongly religious, and the differences between these probabilities increase only slightly when additional information on personal asceticism, denominational proscriptiveness, and/or aggregate religiosity is provided. These findings are consistent with those reported throughout this study and suggest that the original Anti-asceticism hypothesis of Middleton and Putney may be sufficient and without need for the theoretical modifications expressed by others.

The probability of alcohol use predicted for the weakly religious youth in these data is also much greater than that predicted for the strongly religious. However, the differences between these probabilities, unlike those for marijuana use, do increase substantially with the addition of this information, particularly data on denominational proscriptiveness. These findings, with regard to adolescent alcohol consumption, are also consistent with those discussed throughout this study. In addition, these findings suggest that the Anti-asceticism hypothesis is too narrow to fully account for the manner in which religion

serves to constrain teenage alcohol use. In the section below, I will attempt to provide a theoretical framework, informed by reference group theory, to account for these various findings.

### Discussion

Most previous work in this area has simply attempted to establish empirical relationships between religion and various forms of deviant behavior, choosing neither to deduce their hypotheses from any theoretical base nor attempting to ground their findings into any abstract notions (Tittle and Welch, 1983; Bock et al., 1985; Ellis, 1985; and Cochran et al., 1986 represent exceptions). While there is nothing wrong with such efforts, their atheoretical quality makes them of limited usefulness. I, on the other hand, have taken the various conceptual and theoretical strands running through the literature on the relationship between religion and deviant behavior and have presented them as successive modifications of the original Hellfire hypothesis. This has, I believe, produced a heightened conceptual unity and clarity that was very much needed in the literature. It has become obvious that the basic hypothesis asserting an inverse relationship between religiosity and deviant behavior holds up quite well, and that these modifications specify this effect a little more clearly. The development of these linked models as presented in this dissertation is farther than anyone has

gone in providing coherence to this body of research. However, having taken it this far, the stage is set for trying to integrate these models into a broader theoretical perspective. While some possible theoretical traditions have been adumbrated by Tittle and Welch (1983), I shall concentrate on reference group theory as a broader theoretical tradition capable of subsuming all of the many disparate findings and concepts into a single organized body of knowledge.

Reference group theory takes as its key premise the assertion that individuals' behaviors, attitudes, values, and beliefs are decisively shaped by the groups in which they participate. This perspective, which lies at the core of sociology, is implied in the works of classical theorists like Marx, Durkheim, and Weber as well as by each of the social scientists whose research efforts have been cited throughout this paper. Each asserts that the moral messages expressed through religion shape society by influencing the behavior of individuals.

Bock et al. (1983) have stated systematically the conditions under which people will use a group, particularly a religious group, as a frame of reference. While dismissing the claims of Ofshe (1972), who argued that no criteria exist for determining whether a group is a point of reference, Bock and his colleagues returned to the works of Robert K. Merton to rediscover the elements needed to construct a formal statement of reference group theory (see

Merton and Rossi, 1950 and Merton, 1958). First, Merton and Rossi said that before people can use a group's norms as a point of reference for their own attitudes or behaviors, they must perceive "some similarity in status attributes" between themselves and the members of the group (1950: 296-297). In addition, Merton emphasized that individuals must be oriented to the values of the group (Merton and Rossi, 1950: 301-302; Merton, 1958: 386-394). Further, Merton and Rossi noted that sustained interaction is a necessary factor for group influence (1950: 285-286). Finally, Merton indicated the importance of significant others who would be influenced by the group; these significant others must be both highly visible and capable of articulating group norms and values (1958: 391-393). Bock et al. (1983) organized these seminal ideas into the following formal statement:

The degree to which a group or collectivity serves as a normative reference group for an individual is a positive and additive function of (1) the degree of similarity between the status attributes of that individual and the group members, (2) the degree to which the individual's values and beliefs correspond to those of the other group members, (3) the degree of clarity in the group's values and beliefs, (4) the degree to which the individual engages in sustained interaction with other members of the group, and (5) the degree to which the individual defines other group members as significant.

Psychologists have shown that there is substantial empirical support for each of the conditional statements in this hypothesis (Allen and Wilder, 1976; Singer, 1981). More important, however, is the fit of religion and

religiosity with this set of statements. First, it has been empirically established that people belonging to the same church are quite homogeneous in that they share similar status attributes (Beeghley et al., 1981). Thus, the first element of this formal statement of reference group theory is satisfied and suggests that religious groups may serve as reference groups. Second, people belonging to the same religion share similar values and beliefs, particularly those associated with official church doctrine (Bock et al., 1983). In addition, these religious values and beliefs are usually clearly articulated and tend to be relatively stable and enduring over time (Salisbury, 1964; Chalfant et al., 1981). Thus, both the second and third criteria of religion as a reference group are also met. The fourth element is also satisfied because people who regularly attend religious services are, by definition, in sustained interaction with one another. Finally, the fifth factor is indicated by the fact that strongly religious people nearly always define their Priests, Ministers, and Rabbis as significant others, as moral leaders (Alston and McIntosh, 1979). In sum, both religion per se and denominations in particular can serve as reference groups for their members. Furthermore, it is very likely that the normative reference functions of religious groups are greater for those who are strongly religious. That is, the more religious individuals are, the greater the probability of them employing religion as a frame of reference. Thus, religiosity can be applied as an indicator

of the likelihood that a religious group will be employed as a point of normative reference.

It is useful here to be reminded that the term "reference group" is something of a misnomer" (Merton, 1958: 338). The concept reference group includes, in rather undifferentiated fashion, any collection of people "who have a sense of solidarity by virtue of sharing common values and who have acquired an attendant sense of moral obligation to fulfill role-expectations" (Merton, 1958: 353). Thus, the various religious groups and collectivities employed in this study can each serve as a form of religious reference group. First, religion, per se, can be a reference group. Here group membership is undefined, though largely a function of whether or not, and to what degree, one is religious. Because nearly all religions are concerned with moral issues and strive to promote the practice of good, moral behavior, and because deviant behavior is broadly equated as immoral behavior, the inverse relationship between religiosity and deviance can serve as general evidence of the degree to which religion is utilized as a global, normative reference group which encourages conformity in its members. That is, the more religious one is, the greater the degree to which religion will be employed as a frame of reference; the more religion is employed as a normative reference point, the greater the conformity to religious moral norms and values. Therefore,



religiosity is positively related to conformity and negatively related to deviance.

However, more so than religion in general, one's denomination and church of attendance may also serve as a religious reference group. Because these groups are more proximate to the individual, they are able to more clearly articulate their values and beliefs regarding moral issues such as the use of alcohol or marijuana. Because there is variability across these groups in their normative stands on these moral issues, notions of what constitutes conformity also varies. When denominational or church norms strictly proscribe behavior such as alcohol use, conformity is evidenced by abstinence. On the other hand, where denominational or church norms toward alcohol use are more tolerant of use, then conformity is evidenced by abstinence as well as by consumption in moderation. Conformity to these various religious norms should be greatest when these religious groups are most utilized as frames of reference. Thus, the inverse relationship between religiosity (i.e., the employment of a religious group as a frame of reference) and alcohol use will vary directly with the degree of proscriptiveness of these religious groups.

The notion of moral community represents a third means through which religion can serve as a frame of reference. The differential association perspective of Sutherland and Cressy (1978), undoubtedly derived from reference group theory (Merton, 1958), argues that deviance is directly related to an excess exposure to social definitions

favorable to deviance. Since almost all religions are devoted to the practice and promotion of moral behavior, it follows that those individuals with higher levels of religiosity are exposed to more messages unfavorable toward deviance. Therefore, the greater one's religiosity, the less likely one is to engage in deviant behavior. "If religiosity exposes a person to an excess of definitions favorable to conformity, . . . this effect should be greatest where religiously informed definitions are widely dispersed" (Tittle and Welch, 1983: 660). It is in "moral communities" (i.e., those communities in which a majority profess that they are "quite religious") that such religiously informed definitions are most widely dispersed. Thus, moral communities may serve as an additional source of religious reference by exposing residents to an excess of conformity messages consistent with those present in the religious realm.

These applications of reference group theory to religious groups and collectivities are presented in a post hoc fashion and are only tentatively submitted. Without question other theoretical perspectives may also account for these findings. For instance, in addition to the reference group/differential association perspective presented above, Tittle and Welch suggest several other theoretical perspectives which can also serve as the basis for expecting religiosity to inhibit deviance (1983: 656-658).

An agenda for future research would suggest first and foremost that the atheoretical nature of research on the inhibitory impact of religiosity on deviant behavior must be addressed. While a number of theoretical perspectives can account for some of the findings, only reference group theory appears capable of explaining both the varying influence of religiosity over many forms of deviant behavior as well as the interactions between religiosity and both religious norm qualities and aggregate religiosity. Nevertheless, the reference group perspective is still theoretically undeveloped. Particularly important to the development of a reference group explanation of the "religious factor" is the notion of multiple groups of reference. In a pluralistic society, it is most unlikely that religious groups serve as the only source of normative guidance or as the most powerful. Moreover, it is quite likely that individuals may be members of groups whose norms and values conflict with those of their religious reference groups. Thus, the theoretical development of a reference group explanation of the religious factor must account for both the selection of religious groups as a source of normative direction over other groups which are in value or normative conflict with these religious groups and the salience of religious reference groups relative to other frames of reference with similar normative orientations.

Once this theoretical development has been accomplished, formal statements and hypotheses should be

derived and tested with data appropriate to the task. These data should address the limitations of the present research as well as that in previous studies. It is imperative that a wide range of deviant behaviors is analyzed, that multiple indicators tapping the full dimensionality of religiosity are available, that sufficient statistical controls are included, that various forms of religious reference groups be examined, that theoretically appropriate interactions are examined, and that careful measures are taken to examine both the mechanism or process of selecting religious groups as points of reference and the impact of these religious reference groups relative to other groups of reference. Our knowledge remains immature until each of these issues is fully addressed.

APPENDIX A

TABLE OF PRIOR RESEARCH ON THE RELIGIOSITY-  
DEVIANCE RELATIONSHIP

Table 1: Prior Research on the Religiosity-Deviance Relationship

Source (date)	Sample	Hypothesis Tested (support)	Dependent Variable(s)	Independent Variable(s)	Controls yes/no	Method of Analysis
Hirschi & Gottman (1994)	5,562 secondary school students (California)	Hellfire (not supported)	self-reported delinquency & police records	attendance & beliefs	yes	Gamma
Rhodes & Reiss (1970)	21,720 secondary school students (Tennessee)	Hellfire (supported)	truancy & official delinquency	attendance, denomination, & parental attendance	yes	Multiple Classification Analysis
Berkett & White (1974)	855 high school students (Pacific NW)	Hellfire (not supported) Anti-asceticism (supported)	self-reported delinquency, frequency of alcohol and marijuana use	attendance & denomination	yes	Gamma
McLuckie, Zahn, & Wilson (1975)	30,000+ secondary school students (Pennsylvania)	Anti-asceticism (supported)	self-reported substance use	attendance, denomination, & parochial school attend.	yes	Pearson's Rho
Rohrbaugh & Jessor (1975)	2,220 secondary school students & 497 college students (Rocky Mountains)	Hellfire (supported) Anti-asceticism (supported)	self-reported deviance	attendance, prayer, salience, beliefs, & experiences	yes	Pearson's Rho
Albrecht, Chadwick, & Alcorn (1977)	244 Mormon teenagers (Utah, Idaho, & California)	Hellfire (supported) Anti-asceticism (supported)	self-reported deviance	attendance, prayer, & beliefs	yes	Pearson's Rho Multiple R
Berkett (1977)	437 senior class students (Pacific NW)	Anti-asceticism (supported)	self-reported beer and marijuana use	attendance, beliefs, & parental attendance	yes	Gamma

Table 1 continued:

Source (date)	Sample	Hypothesis Tested (support)	Dependent Variable(s)	Independent Variable(s)	Controls yes/no	Method of Analysis
Higgins & Albrecht (1977)	1,383 tenth grade students (Georgia)	Hellfire (supported)	self-reported delinquency	attendance & denomination	yes	Gamma
Linden & Currie (1977)	750 teenagers (Calgary)	Anti-asceticism (supported)	self-reported substance use	attendance, salience, & orthodoxy	yes	Gamma
Jensen & Erickson (1979)	3,208 high school students (Arizona)	Hellfire (supported) Anti-asceticism (supported) Norm Qualities (supported)	self-reported delinquency & drug use	attendance, affiliation, beliefs, & participation	yes	Gamma R <sup>2</sup>
Schlegel & Sanborn (1979)	342 high school students (Ontario)	Anti-asceticism (supported) Norm Qualities (supported)	self-reported alcohol use	attendance & denomination	yes	ANOVA ANCOVA
Turner & Willis (1979)	379 college students (New Jersey)	Anti-asceticism (supported)	self-reported substance use	salience	yes	Pearson's Rho
Burkett (1980)	323 ninth grade students (Pacific NW)	Anti-asceticism (supported) Norm Qualities (supported)	self-reported alcohol use	attendance, orthodoxy, denomination, religious self- concept, norm qualities, & religious satisfaction	no	Gamma
Stark, Doyle, & Kent (1980)	193 SHSAs	Moral Communities (supported)	official crime rates	church membership rates	yes	Pearson's Rho

Table 1 continued:

Source (date)	Sample	Hypothesis Tested (support)	Dependent Variable(s)	Independent Variable(s)	Controls yes/no	Method of Analysis
McIntosh, Fitch, Wilson, & Hyberg (1981)	1358 secondary school students (Brazos Valley, Texas)	Anti-asceticism (supported) Norm Qualities (not supported)	self-reported frequency of drug use	attendance, & salience, & denomination	yes	Pearson's Rho ANCOVA R <sup>2</sup>
Krohn, Akers, Radosevich, & Lanza-Kaduce (1982)	3,065 secondary school students (3 Midwest states)	Norm Qualities (supported)	self-reported alcohol and marijuana use	religious norm qualities	yes	Multiple Regression
Nelson & Rooney (1982)	4,813 high school seniors (6 NE states)	Anti-asceticism (supported) Norm Qualities (supported)	self-reported substance use	attendance & denomination	yes	ANOVA Multiple Classification Analysis
Stark, Kent, & Doyle (1982)	273 boys (Utah) 1,213 boys (Oregon) 1,799 10th graders (national) white males from Hirschi & Stark's data	Moral Communities (supported)	official delinquency & self-reported delinquency	attendance, beliefs, & salience	no	Gamma
Anderson & Wakefield (1983)	170 college students (Louisiana)	Hellfire (supported) Anti-asceticism (supported)	self-reported offenses	attendance, beliefs, & salience	yes	Gamma Multiple Regression
Elifson, Petersen, & Hadaway (1983)	568 secondary school students (Georgia)	Hellfire (not supported) Anti-asceticism (supported)	self-reported delinquency	attendance, prayer, beliefs, salience, orthodoxy, & parental attendance	yes	Gamma Pearson's Rho Multiple Regression



Table 1 continued:

Source (Date)	Sample	Hypothesis Tested (support)	Dependent Variable(s)	Independent Variable(s)	Controls yes/no	Method of Analysis
Title & Welch (1983)	1,993 residents of Iowa, Oregon, & New Jersey	Hellfire (supported) Moral Communities (not supported)	self-reported deviancy	attendance	yes	Spearman's Rho
Cochran & Bock (1984)	4,530 adults (NORC general social surveys)	Anti-asceticism (supported) Norm Qualities (supported)	self-reported alcohol use	attendance, denomination, salience, & participation	yes	Multiple Regression R <sup>2</sup>
Hadaway, Elifson, & Petersen (1984)	600 white high school students (Georgia)	Hellfire (supported) Anti-asceticism (supported)	self-reported alcohol and marijuana use	attendance, denomination, prayer, beliefs, salience, orthodoxy, & parental attendance	yes	Gamma Discriminant Function Analysis
Bock, Cochran, & Beeghly (1985)	4,530 adults (NORC general social surveys)	Anti-asceticism (supported) Norm Qualities (supported)	self-reported alcohol use	attendance, denomination, salience, & participation	yes	Multiple Regression R <sup>2</sup>
Perkins (1985)	1,515 college students (New York)	Anti-asceticism (supported) Norm Qualities (supported)	self-reported substance use	salience & denomination	yes	Multiple Regression
Cochran, Beeghly, Bock (1986)	7,581 adults (NORC general social surveys)	Anti-asceticism (supported) Norm Qualities (supported)	self-reported alcohol use	attendance, denomination, salience, & beliefs, & participation	yes	Logistic Regression

APPENDIX B

TABLE OF THE VARIABLES, THEIR CODINGS,  
AND DISTRIBUTIONS

Table 2: The Variables, Their Codings and Distributions

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Indicators of Delinquent Behavior:

Vandalism

0=never	1453 (50.7%)
1=once or more	1414 (49.3%)

Motor Vehical Theft

0=never	2580 (90.0%)
1=once or more	286 (10.0%)

Assult

0=never	2341 (81.6%)
1=once or more	529 (18.4%)

Weapon Use

0=never	2478 (86.6%)
1=once or more	382 (13.4%)

Petty Theft

0=never	1653 (57.9%)
1=once or more	1202 (42.1%)

Grand Theft

0=never	2665 (93.8%)
1=once or more	177 ( 6.2%)

Delinquency

0=never	2112 (75.2%)
1=once or more	698 (24.8%)

Table 2 continued:

=====		
Stimulants		
0=nonuser	2575	(84.6%)
1=user	470	(15.4%)
Depressants		
0=nonuser	2737	(89.7%)
1=user	315	(10.3%)
Psychedelics		
0=nonuser	2851	(93.4%)
1=user	202	( 6.6%)
Narcotics		
0=nonuser	2924	(95.6%)
1=user	134	( 4.4%)
Hard Drugs		
0=nonuser	2674	(88.1%)
1=user	360	(11.9%)
<u>Indicators of Anti-ascetic Behavior:</u>		
Marijuana		
0=nonuser	1757	(57.5%)
1=user	1298	(42.5%)
Beer		
0=nonuser	566	(18.5%)
1=user	2490	(81.5%)
Wine		
0=nonuser	655	(21.5%)
1=user	2385	(78.5%)

Table 2 continued:

=====

Liquor

0=nonuser	936 (30.8%)
1=user	2104 (69.2%)

Alcohol

0=nonuser	562 (18.6%)
1=user	2457 (81.4%)

Premarital Sex

0=never	1872 (65.9%)
1=once or more	970 (34.1%)

Religious Variables:

Religiousness

1=not religious at all	333 (10.9%)
2=a little religious	1138 (37.3%)
3=more than a little religious	919 (30.1%)
4=quite religious	661 (21.7%)

Participatory Salience

(Importance of Church Activities)

1=not important at all	667 (23.3%)
2=unimportant	1008 (35.1%)
3=important	940 (32.8%)
4=very important	253 ( 8.8%)

Personal Asceticism

(toward alcohol)

0=prescriptive	2776 (92.4%)
1=proscriptive	228 ( 7.6%)

(toward marijuana)

0=prescriptive	2661 (88.8%)
1=proscriptive	337 (11.2%)

Table 2 continued:

Conditional Variables:

Attributed Denominational Proscriptiveness

0=prescriptive	2058 (74.0%)
1=proscriptive	722 (26.0%)

Perceived Denominational Proscriptiveness  
(toward alcohol)

0=prescriptive	2470 (93.5%)
1=proscriptive	172 ( 6.5%)

(toward marijuana)

0=prescriptive	2477 (93.9%)
1=proscriptive	162 ( 6.1%)

Aggrgate Religiosity

0=lower aggregate religiosity	1643 (53.6%)
1=higher aggregate religiosity	1422 (46.4%)

Control Variables:

Age

(in years)	mean=15.29
10-19	std. dev.= 1.72
	n=3054

Race

0=black	145 ( 4.7%)
1=white	2920 (95.3%)

Gender

0=female	1713 (56.0%)
1=male	1346 (44.0%)

Table 2 continued:

SES

(father's occupation)

1=professional, technical, or kindred	606 (23.9%)
2=managers, officials, and proprietors	503 (19.9%)
3=clerical, sales, and kindred workers	351 (13.9%)
4=craftsmen, foremen and skilled workers	628 (24.8%)
5=operatives and semi- skilled workers	170 ( 6.7%)
6=service workers	20 ( 0.8%)
7=unskilled laborers and household workers	180 ( 7.1%)
8=farm managers and owners	70 ( 2.8%)
9=farm laborers	5 ( 0.2%)

---

APPENDIX C

RESULTS OF TESTS OF THE HIRSCHI AND STARK  
HELLEFIRE HYPOTHESIS



Table 3: Logistic Regression Parameter Estimates for Tests  
of the Hirschi and Stark Hellfire Hypothesis.

=====				
MODEL 1				
Delinquency Index				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
-----				
RELIGIOSITY:				
Religiousness	-.223*	.006	-.041*	-.062*
Participatory Salience	-.409*	.071	-.076*	-.103*
CONTROLS:				
Age	.034	.032	.006	.000
Race	1.192*	.411	.221*	.049*
Gender	1.181*	.104	.218*	.216*
SES	.009	.028	.002	.000
INTERCEPT	-1.969			
-----				
-2 Log L (intercept)	2557.79			
-2 Log L (model)	2291.90			
Model $\chi^2$	265.89 w/ 6 d.f.			
$R_L$	.315*			
mean of Y	.245			
N	2296			
-----				
P(Y=1)				
strongly religious	.09			
weakly religious	.40			
-----				

\*  $p < .05$

Table 3 continued:

=====				
	MODEL 2 Vandalism			
	$b_k$	$se(b_k)$	$P_k$	$R_k$
RELIGIOSITY:				
Religiousness	.027	.057	.007	.000
Participatory Salience	-.463*	.061	-.116*	-.132*
CONTROLS:				
Age	-.056*	.027	-.014*	-.026*
Race	.564*	.257	.141*	.029*
Gender	1.254*	.090	.313*	.243*
SES	-.033	.024	-.008	-.000
INTERCEPT	.849			
-----				
-2 Log L (intercept)	3242.28			
-2 Log L (model)	2935.78			
Model $\chi^2$	306.50 w/ 6 d.f.			
$R_L$	.301*			
mean of Y	.495			
N	2339			
-----				
P(Y=1)				
strongly religious	.31			
weakly religious	.63			
-----				

\*  $p < .05$

Table 3 continued:

=====				
	MODEL 3 Motor Vehical Theft			
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.248*	.092	-.022*	-.059*
Participatory Saliency	-.212*	.099	-.019*	-.042*
CONTROLS:				
Age	.111*	.045	.010*	.052*
Race	2.073*	1.012	.182*	.038*
Gender	.712*	.144	.063*	.123*
SES	-.056	.040	-.005	-.003
INTERCEPT	-5.083			
<hr/>				
-2 Log L (intercept)	1493.82			
-2 Log L (model)	1413.86			
Model $\chi^2$	79.96 w/ 6 d.f.			
$R_L$	.213*			
mean of Y	.098			
N	2335			
<hr/>				
P(Y=1)				
strongly religious	.04			
weakly religious	.15			
<hr/>				

\*  $p < .05$

Table 3 continued:

=====				
	MODEL 4 Assult			
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.338*	.076	-.049*	-.090*
Participatory Saliency	-.087	.080	-.013	-.000
CONTROLS:				
Age	-.052	.035	-.008	-.009
Race	.049	.325	.007	.000
Gender	1.919*	.129	.280*	.316*
SES	.038	.031	.006	.000
INTERCEPT	-.943			
<hr/>				
-2 Log L (intercept)	2189.88			
-2 Log L (model)	1871.82			
Model $\chi^2$	318.07 w/ 6 d.f.			
$R_L$	.374*			
mean of Y	.178			
N	2339			
<hr/>				
P(Y=1)				
strongly religious	.08			
weakly religious	.23			
<hr/>				

\*  $p < .05$

Table 3 continued:

=====				
	MODEL 5 Weapon Use			
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.208*	.082	-.023*	-.050*
Participatory Salience	-.187*	.088	-.021*	-.038*
CONTROLS:				
Age	-.028	.039	-.003	-.000
Race	-.048	.354	-.005	-.000
Gender	.906*	.129	.101*	.163*
SES	.082*	.033	.009*	.048*
INTERCEPT	-1.231			
<hr/>				
-2 Log L (intercept)	1774.42			
-2 Log L (model)	1686.53			
Model $\chi^2$	87.89 w/ 6 d.f.			
$R_L$	.207*			
mean of $\gamma$	.127			
N	2331			
<hr/>				
P(Y=1)				
strongly religious	.07			
weakly religious	.19			
<hr/>				

\*  $p < .05$

Table 3 continued:

=====				
MODEL 6 Petty Theft				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
-----				
RELIGIOSITY:				
Religiousness	-.193*	.056	-.047*	-.056*
Participatory Salience	-.372*	.059	-.090*	-.109*
CONTROLS:				
Age	.062*	.027	.015*	.033*
Race	.176	.250	.043	.000
Gender	.417*	.088	.101*	.081*
SES	.019	.023	.005	.000
INTERCEPT	-.382			
-----				
-2 Log L (intercept)	3154.35			
-2 Log L (model)	2995.79			
Model $\chi^2$	158.56 w/ 6 d.f.			
$R_L$	.216*			
mean of Y	.413			
N	2327			
-----				
P(Y=1)				
strongly religious	.22			
weakly religious	.60			
-----				

\*  $p < .05$

Table 3 continued:

=====				
MODEL 7 Grand Theft				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
-----				
RELIGIOSITY:				
Religiousness	-.253*	.117	-.014*	-.050*
Participatory Salience	-.400*	.129	-.022*	-.084*
CONTROLS:				
Age	.163*	.058	.009*	.074*
Race	.829	.730	.046	.000
Gender	1.137*	.191	.064*	.178*
SES	.097*	.046	.005*	.048*
INTERCEPT	-5.596			
-----				
-2 Log L (intercept)	1057.40			
-2 Log L (model)	958.20			
Model $\chi^2$	99.20	w/ 6 d.f.		
$R_L$	.287*			
mean of Y	.060			
N	2319			
-----				
P(Y=1)				
strongly religious	.02			
weakly religious	.10			
-----				

\*  $p < .05$

Table 3 continued:

=====				
MODEL 8				
Hard Drug Use Index				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.379*	.089	-.039*	-.098*
Participatory Salience	-.617*	.098	-.064*	-.148*
CONTROLS:				
Age	.297*	.046	.031*	.153*
Race	.245	.445	.025	.000
Gender	-.349*	.139	-.036*	-.050*
SES	.026	.036	.003	.000
INTERCEPT	-4.696			
<hr/>				
-2 Log L (intercept)	1704.02			
-2 Log L (model)	1505.08			
Model $\chi^2$	198.94 w/ 6 d.f.			
$R_L$	.331*			
mean of Y	.118			
N	2348			
<hr/>				
P(Y=1)				
strongly religious	.02			
weakly religious	.28			
<hr/>				

\*  $p < .05$



Table 3 continued:

=====				
MODEL 9				
Use of Stimulants				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.336*	.079	-.044*	-.090*
Participatory Salience	-.578*	.086	-.075*	-.146*
CONTROLS:				
Age	.291*	.041	.038*	.157*
Race	.104	.375	.014	.000
Gender	-.422*	.125	-.055*	-.068*
SES	.030	.032	.004	.000
INTERCEPT	-4.297			
<hr/>				
-2 Log L (intercept)	2015.22			
-2 Log L (model)	1791.62			
Model $\chi^2$	223.60.89 w/ 6 d.f.			
$R_L$	.324*			
mean of Y	.153			
N	2358			
<hr/>				
P(Y=1)				
strongly religious	.03			
weakly religious	.33			
<hr/>				

\*  $p < .05$

Table 3 continued:

=====				
MODEL 10				
Use of Depressants				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
-----				
RELIGIOSITY:				
Religiousness	-.287*	.090	-.027*	-.071*
Participatory Salience	-.524*	.099	-.050*	-.127*
CONTROLS:				
Age	.187*	.045	.018*	.098*
Race	-.456	.357	-.043	-.000
Gender	-.162	.140	-.015	-.000
SES	.035	.036	.003	.000
INTERCEPT	-2.876			
-----				
-2 Log L (intercept)	1595.90			
-2 Log L (model)	1479.89			
Model $\chi^2$	116.01 w/ 6 d.f.			
$R_L$	.255*			
mean of Y	.106			
N	2364			
-----				
P(Y=1)				
strongly religious	.03			
weakly religious	.23			
-----				

\*  $p < .05$

Table 3 continued:

=====				
MODEL 11				
Use of Psychedelics				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
-----				
RELIGIOSITY:				
Religiousness	-.302*	.111	-.019*	-.068*
Participatory Salience	-.631*	.127	-.040*	-.140*
CONTROLS:				
Age	.309*	.059	.019*	.148*
Race	1.508	1.017	.095	.013
Gender	-.190	.173	-.012	-.000
SES	-.014	.046	-.001	-.000
INTERCEPT	-6.899			
-----				
-2 Log L (intercept)	1160.42			
-2 Log L (model)	1040.47			
Model $\chi^2$	119.94	w/ 6 d.f.		
$R_L$	.305*			
mean of Y	.067			
N	2366			
-----				
P(Y=1)				
strongly religious	.01			
weakly religious	.15			
-----				

\*  $p < .05$

Table 3 continued:

=====				
MODEL 12				
Use of Narcotics				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
-----				
RELIGIOSITY:				
Religiousness	-.488*	.138	-.021*	-.111*
Participatory Salience	-.441*	.153	-.019*	-.086*
CONTROLS:				
Age	.233*	.069	.010*	.104*
Race	7.610	15.683	.327	.000
Gender	.298	.206	.013	.010
SES	-.139*	.061	-.006*	-.062*
INTERCEPT	-12.010			
-----				
-2 Log L (intercept)	853.63			
-2 Log L (model)	768.90			
Model $\chi^2$	84.73 w/ 6 d.f.			
$R_L$	.292*			
mean of Y	.045			
N	2370			
-----				
P(Y=1)				
strongly religious	.01			
weakly religious	.09			
-----				

\*  $p < .05$

Table 4: Partial R Statistics for the Effects of Religiousness and Participatory Salience on Delinquent Behavior Ranked by the Severity of the Offense.

	Vandalism (1.1)	Petty Theft (2.9)	Grand Theft (3.6)	Motor Vehical Theft (4.4)	Assult (7.3)	Weapon Use (9.3)
Religiousness	.000	-.056	-.050	-.059	-.090	-.050
Participatory Salience	-.132	-.109	-.084	-.042	-.000	-.038

Table 5: Overall Predicted Probabilities and Risk Factors of Delinquency Involvement Ranked by the Severity of the Delinquent Behavior.

-151-

	Vandalism (1.1)	Petty Theft (2.9)	Grand Theft (3.6)	Motor Vehical Theft (4.4)	Assult (7.3)	Weapon Use (9.3)
P(Y=1)						
strongly religious	.31	.22	.02	.04	.08	.07
weakly religious	.63	.60	.10	.15	.23	.19
Risk Factor <sup>a</sup>	2.0	2.7	5.0	3.7	2.9	2.7

a. Risk Factor = [P(Y=1) weakly religious] / [P(Y=1) strongly religious].

APPENDIX D

RESULTS OF TESTS OF THE MIDDLETON AND PUTNEY  
ANTI-ASCETICISM HYPOTHESIS  
(WITH BURKETT'S REVISION)

Table 6: Logistic Regression Parameter Estimates for Tests  
of the Middleton and Putney Anti-Asceticism Hyp.

=====				
MODEL 1				
Premarital Sex				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.329*	.060	-.073*	-.098*
Participatory Saliency	-.169*	.062	-.038*	-.042*
CONTROLS:				
Age	.225*	.029	.050*	.139*
Race	-.655*	.246	-.145*	-.042*
Gender	.597*	.093	.133*	.115*
SES	.078*	.025	.017*	.052*
INTERCEPT	-2.833			
<hr/>				
-2 Log L (intercept)	2947.98			
-2 Log L (model)	2731.09			
Model $\chi^2$	216.88 w/ 6 d.f.			
$R_L$	.264*			
mean of Y	.332			
N	2319			
<hr/>				
P(Y=1)				
strongly religious	.18			
weakly religious	.50			
<hr/>				

\*  $p < .05$

Table 6 continued:

=====				
	MODEL 2 Marijuana Use			
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.331*	.058	-.081*	-.097*
Participatory Saliency	-.458*	.061	-.112*	-.130*
CONTROLS:				
Age	.310*	.029	.076*	.188*
Race	-.160	.251	-.039	-.000
Gender	.221*	.091	.054*	.034*
SES	-.016	.024	-.004	-.000
INTERCEPT	-3.085			
<hr/>				
-2 Log L (intercept)	3232.44			
-2 Log L (model)	2855.11			
Model $\chi^2$	377.33 w/ 6 d.f.			
$R_L$	.336*			
mean of Y	.425			
N	2370			
<hr/>				
P(Y=1)				
strongly religious	.17			
weakly religious	.69			
<hr/>				

\*  $p < .05$



Table 6 continued:

=====				
	MODEL 2 Alcohol Use			
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.031	.075	-.005	-.000
Participatory Saliency	-.541*	.079	-.081*	-.142*
CONTROLS:				
Age	.405*	.036	.060*	.240*
Race	.760*	.272	.113*	.051*
Gender	.187	.118	.028	.015
SES	-.030	.030	-.004	-.000
INTERCEPT	-3.851			
<hr/>				
-2 Log L (intercept)	2221.82			
-2 Log L (model)	1945.83			
Model $\chi^2$	275.98 w/ 6 d.f.			
$R_L$	.345*			
mean of Y	.818			
N	2343			
<hr/>				
P(Y=1)				
strongly religious	.69			
weakly religious	.93			
<hr/>				

\*  $p < .05$

Table 6 continued:

=====				
MODEL 4				
Use of Beer				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
-----				
RELIGIOSITY:				
Religiousness	-.132	.073	-.020	-.024
Participatory Saliency	-.517*	.076	-.078*	-.139*
CONTROLS:				
Age	.308*	.034	.046*	.188*
Race	.558*	.272	.084*	.031*
Gender	.369*	.117	.055*	.059*
SES	.010	.030	.001	.000
INTERCEPT	-2.213			
-----				
-2 Log L (intercept)	2257.10			
-2 Log L (model)	2030.31			
Model $\chi^2$	226.79 w/ 6 d.f.			
$R_L$	.308*			
mean of Y	.817			
N	2371			
-----				
P(Y=1)				
strongly religious	.66			
weakly religious	.93			
-----				

\*  $p < .05$

Table 6 continued:

=====				
MODEL 5				
Use of Wine				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
-----				
RELIGIOSITY:				
Religiousness	.070	.068	.011	.000
Participatory Salience	-.278*	.071	-.047*	-.077*
CONTROLS:				
Age	.237*	.032	.039*	.150*
Race	.352	.265	.058	.000
Gender	-.112	.106	-.018	-.000
SES	-.073*	.027	-.012*	-.047*
INTERCEPT	-1.810			
-----				
-2 Log L (intercept)	2402.90			
-2 Log L (model)	2292.43			
Model $\chi^2$	110.47 w/ 6 d.f.			
$R_L$	.202*			
mean of Y	.794			
N	2360			
-----				
P(Y=1)				
strongly religious	.74			
weakly religious	.84			
-----				

\*  $p < .05$

Table 6 continued:

=====				
MODEL 6 Use of Liquor				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.190*	.063	-.040*	-.049*
Participatory Saliency	-.403*	.066	-.085*	-.110*
CONTROLS:				
Age	.451*	.031	.095*	.268*
Race	.712*	.255	.151	.045*
Gender	-.006	.100	-.001	-.000
SES	-.005	.026	-.001	-.000
INTERCEPT	-5.183			
<hr/>				
-2 Log L (intercept)	2888.59			
-2 Log L (model)	2496.87			
Model $\chi^2$	391.72 w/ 6 d.f.			
$R_L$	.363*			
mean of Y	.698			
N	2358			
<hr/>				
P(Y=1)				
strongly religious	.51			
weakly religious	.86			
<hr/>				

\*  $p < .05$

Table 7: Partial R Statistics for the Effects of Religiousness and Participatory Salience on Delinquent and Anti-Ascetic Behavior.

	Delinquent Behavior	Hard Drug Use	Premarital Sex	Marijuana Use	Alcohol Use
Religiousness	-.062	-.098	-.098	-.097	-.000
Participatory Salience	-.103	-.148	-.042	-.130	-.142

Table 8: Overall Predicted Probabilities and Risk Factors of Delinquent and Anti-Ascetic Behavior

	Delinquent Behavior	Hard Drug Use	Premarital Sex	Marijuana Use	Alcohol Use
P (Y=1)					
strongly religious	.09	.02	.18	.17	.69
weakly religious	.40	.28	.50	.69	.93
Risk Factor <sup>a</sup>	4.4	14.0	2.8	4.0	1.3

a. Risk Factor = [P(Y=1) weakly religious] / [P(Y=1) strongly religious].

Table 9: Logistic Regression Parameter Estimates for Tests of Burkett's Revision of the Middleton and Putney Anti-Asceticism Hypothesis.

=====				
MODEL 1				
Marijuana Use				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.334*	.059	-.081*	-.098*
Participatory Saliency	-.461*	.061	-.112*	-.130*
Personal Asceticism	-.277	.154	-.068	-.020
CONTROLS:				
Age	.315*	.029	.077*	.189*
Race	-.200	.255	-.049	-.000
Gender	.230*	.093	.056*	.036*
SES	-.019	.025	-.005	-.000
Adult NQ	.552	.299	.135	.021
Peer NQ	-.475*	.173	-.116*	-.042*
INTERCEPT	-3.048			
<hr/>				
-2 Log L (intercept)	3194.20			
-2 Log L (model)	2798.60			
Model $\chi^2$	395.60 w/ 9 d.f.			
$R_L$	.344*			
mean of Y	.425			
N	2342			
<hr/>				
P(Y=1)				
strongly religious	.15			
weakly religious	.72			
<hr/>				

\*  $p < .05$

Table 9 continued:

=====				
	MODEL 2 Alcohol Use			
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.049	.076	-.007	-.000
Participatory Salience	-.543*	.080	-.080*	-.143*
Personal Asceticism	-.404	.207	-.060	-.029
CONTROLS:				
Age	.395*	.036	.058*	.233*
Race	.693*	.280	.103*	.043*
Gender	.211	.120	.031	.022
SES	-.027	.030	-.004	-.000
Adult NQ	-.067	.300	-.010	-.000
Peer NQ	-.467*	.214	-.069*	-.036*
INTERCEPT	-3.533			
<hr/>				
-2 Log L (intercept)	2192.70			
-2 Log L (model)	1911.15			
Model $\chi^2$	281.55 w/ 9 d.f.			
$R_L$	.347*			
mean of Y	.820			
N	2323			
<hr/>				
P(Y=1)				
strongly religious	.60			
weakly religious	.93			

\*  $p < .05$

APPENDIX E

RESULTS OF TESTS OF THE JENSEN AND ERICKSON  
NORM QUALITIES HYPOTHESIS



Table 10: Logistic Regression Parameter Estimates for Tests  
of the Jensen and Erickson Norm Qualities  
Hypothesis on Adolescent Marijuana Use.

=====

MODEL 1				
Attributed Prescriptiveness				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
RELIGIOSITY:				
Religiousness	-.411*	.069	-.101*	-.122*
Participatory Saliency	-.444*	.076	-.109*	-.120*
Personal Asceticism	-.425*	.185	-.104*	-.038*
CONTROLS:				
Age	.311*	.035	.076*	.186*
Race	-.208	.366	-.051	-.000
Gender	.169	.111	.041	.012
SES	-.017	.030	-.004	-.000
Adult NQ	.820*	.361	.201*	.038*
Peer NQ	-.658*	.214	-.161*	-.058*
INTERCEPT	-2.745			
-2 Log L (intercept)	2233.41			
-2 Log L (model)	1940.44			
Model $\chi^2$	292.97 w/ 9 d.f.			
$R_L$	.351*			
mean of Y	.427			
N	1625			
-----				
P(Y=1)				
strongly religious	.12			
weakly religious	.73			

\*  $p < .05$

Table 10 continued:

MODEL 2				
Attributed Proscriptiveness				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
RELIGIOSITY:				
Religiousness	-.098	.137	-.023	-.000
Participatory Salience	-.476*	.136	-.109*	-.123*
Personal Asceticism	.210	.319	.048	.000
CONTROLS:				
Age	.311*	.062	.072*	.184*
Race	-.214	.428	-.055	-.000
Gender	.356	.199	.082	.042
SES	-.004	.051	-.001	-.000
Adult NQ	.203	.634	.047	.000
Peer NQ	-.098	.338	-.023	-.000
INTERCEPT	-3.850			
-----				
-2 Log L (intercept)	675.50			
-2 Log L (model)	611.31			
Model $\chi^2$	64.19 w/ 9 d.f.			
$R_L$	.261*			
mean of Y	.360			
N	517			
-----				
P(Y=1)				
strongly religious	.21			
weakly religious	.54			

\*  $p < .05$

Table 10 continued:

=====				
MODEL 3				
Perceived Prescriptiveness				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
-----				
RELIGIOSITY:				
Religiousness	-.364*	.067	-.087*	-.103*
Participatory Salience	-.457*	.067	-.109*	-.130*
Personal Asceticism	-.164	.173	-.039	-.000
CONTROLS:				
Age	.316*	.032	.076*	.191*
Race	-.363	.273	-.087	-.000
Gender	.238*	.102	.057*	.036*
SES	.002	.027	.000	.000
Adult NQ	.559	.351	.134	.014
Peer NQ	-.340	.186	-.081	-.023
INTERCEPT	-2.944			
-----				
-2 Log L (intercept)	2628.72			
-2 Log L (model)	2317.98			
Model $\chi^2$	310.74 w/ 9 d.f.			
$R_L$	.334*			
mean of Y	.396			
N	1958			
-----				
P(Y=1)				
strongly religious	.14			
weakly religious	.69			

\*  $p < .05$

Table 10 continued:

=====				
MODEL 4				
Perceived Proscriptiveness				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
-----				
RELIGIOSITY:				
Religiousness	-.022	.294	-.005	-.000
Participatory Salience	-.163	.290	-.041	-.000
Personal Asceticism	-1.858*	.635	-.464*	-.191*
CONTROLS:				
Age	.311*	.134	.078*	.137*
Race	1.253	1.272	.313	.000
Gender	.118	.407	.029	.000
SES	-.262*	.113	-.065*	-.138*
Adult NQ	.429	1.140	.107	.000
Peer NQ	-1.147	.940	-.287	-.000
INTERCEPT	-4.615			
-----				
-2 Log L (intercept)	178.76			
-2 Log L (model)	147.02			
Model $\chi^2$	31.74 w/ 9 d.f.			
$R_L$	.277*			
mean of Y	.488			
N	129			
-----				
P(Y=1)				
strongly religious	.13			
weakly religious	.62			

\*  $p < .05$

Table 11: Logistic Regression Parameter Estimates for Tests of the Jensen and Erickson Norm Qualities Hypothesis on Adolescent Alcohol Use.

=====				
MODEL 1				
Attributed Prescriptiveness				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.045	.096	-.005	-.000
Participatory Saliency	-.350*	.106	-.042*	-.082*
Personal Asceticism	-.390	.266	-.047	-.011
CONTROLS:				
Age	.446*	.048	.054*	.255*
Race	.520	.455	.063	.000
Gender	.058	.154	.007	.000
SES	-.016	.040	-.002	-.000
Adult NQ	-.150	.367	-.018	-.000
Peer NQ	-.361	.295	-.044	-.000
INTERCEPT	-4.341			
<hr/>				
-2 Log L (intercept)	1314.00			
-2 Log L (model)	1164.81			
Model $\chi^2$	149.19	w/ 9 d.f.		
$R_L$	.316*			
mean of Y	.859			
N	1612			
<hr/>				
P(Y=1)				
strongly religious	.74			
weakly religious	.93			

\*  $p < .05$

Table 11 continued:

=====				
MODEL 2				
Attributed Proscriptiveness				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.211	.151	-.042	-.000
Participatory Saliency	-.535*	.153	-.107*	-.130*
Personal Asceticism	-.560	.386	-.112	-.013
CONTROLS:				
Age	.327*	.068	.065*	.188*
Race	.543	.438	.109	.000
Gender	.444	.228	.089	.055
SES	-.025	.054	-.005	-.000
Adult NQ	-.170	.605	-.034	-.000
Peer NQ	-.381	.375	-.076	-.000
INTERCEPT	-2.448			
<hr/>				
-2 Log L (intercept)	604.60			
-2 Log L (model)	527.35			
Model $\chi^2$	77.25 w/ 9 d.f.			
$R_L$	.313*			
mean of Y	.723			
N	512			
<hr/>				
P(Y=1)				
strongly religious	.38			
weakly religious	.91			

\*  $p < .05$

Table 11 continued:

MODEL 3				
Perceived Prescriptiveness				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
RELIGIOSITY:				
Religiousness	-.087	.084	-.013	-.000
Participatory Salience	-.596*	.086	-.091*	-.156*
Personal Asceticism	-.425	.236	-.065	-.026
CONTROLS:				
Age	.408*	.039	.062*	.241*
Race	.652*	.302	.100*	.038*
Gender	.276*	.130	.042*	.036*
SES	.011	.033	.002	.000
Adult NQ	-.116	.367	-.018	-.000
Peer NQ	-.394	.239	-.060	-.020
INTERCEPT	-3.570			
-----				
-2 Log L (intercept)	1877.31			
-2 Log L (model)	1622.05			
Model $\chi^2$	255.26 w/ 9 d.f.			
$R_L$	.356*			
mean of Y	.811			
N	1936			
-----				
P(Y=1)				
strongly religious	.57			
weakly religious	.94			
-----				
* $p < .05$				

Table 11 continued:

MODEL 4				
Perceived Proscriptiveness				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
RELIGIOSITY:				
Religiousness	.351	.399	.046	.000
Participatory Salience	-.674	.405	-.088	-.081
Personal Asceticism	-.267	.780	-.035	-.000
CONTROLS:				
Age	.373*	.165	.048*	.163*
Race	1.551	1.409	.202	.000
Gender	-.314	.549	-.041	-.000
SES	-.372*	.127	-.048*	-.235*
Adult NQ	.250	.978	.032	.000
Peer NQ	-.456	.859	-.059	-.000
INTERCEPT	-3.276			
-----				
-2 Log L (intercept)	117.37			
-2 Log L (model)	94.31			
Model $\chi^2$	23.06 w/ 9 d.f.			
$R_L$	.208*			
mean of Y	.847			
N	137			
-----				
P(Y=1)				
strongly religious	.77			
weakly religious	.92			

\*  $p < .05$



Table 12: Summary of Cross-Model Comparisons for the Norm Qualities Models.

	<u>Marijuana Use</u>		
	$P_k$	$R_k$	$P(Y=1)$
Attributed Denominational Proscriptiveness:			
religiousness	NS	NS	----
participatory salience	NS	NS	----
personal asceticism	NS	NS	----
strongly religious	----	----	NS
Perceived Denominational Proscriptiveness:			
religiousness	NS	NS	----
participatory salience	NS	NS	----
personal asceticism	S	S	----
strongly religious	----	----	NS

S indicates support for the Norm Qualities hypothesis,  
NS indicates non-support.

Table 12 continued:

Attributed Denominational Proscriptiveness:	<u>Alcohol Use</u>		
	$P_k$	$R_k$	$P(Y=1)$
religiousness	S	NS	----
participatory salience	S	S	----
personal asceticism	S	NS	----
strongly religious	----	----	S
Perceived Denominational Proscriptiveness:			
religiousness	NS	NS	----
participatory salience	NS	NS	----
personal asceticism	NS	NS	----
strongly religious	----	----	NS

S indicates support for the Norm Qualities hypothesis,  
NS indicates non-support.

APPENDIX F

RESULTS OF TESTS OF THE STARK ET AL. MORAL  
COMMUNITIES HYPOTHESIS

Table 13: Logistic Regression Parameter Estimates for Tests of the Stark et al. Moral Communities Hypothesis on Adolescent Marijuana Use.

=====				
MODEL 1				
Low Aggregate Religiosity				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.395*	.087	-.097*	-.108*
Participatory Saliency	-.434*	.090	-.106*	-.115*
Personal Asceticism	-.244	.216	-.060	-.000
CONTROLS:				
Age	.327*	.044	.080*	.183*
Race	-.168	.309	-.041	-.000
Gender	.189	.130	.046	.009
SES	-.010	.033	-.002	-.000
Adult NQ	.410	.372	.100	.000
Peer NQ	-.295	.239	-.072	-.072
INTERCEPT	-3.299			
<hr/>				
-2 Log L (intercept)	1619.64			
-2 Log L (model)	1424.42			
Model $\chi^2$	195.22 w/ 9 d.f.			
$R_L$	.331*			
mean of Y	.426			
N	1187			
<hr/>				
P(Y=1)				
strongly religious	.13			
weakly religious	.69			
<hr/>				
* p < .05				

Table 13 continued:

=====				
MODEL 2				
High Aggregate Religiosity				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.321*	.084	-.078*	-.090*
Participatory Salience	-.459*	.086	-.112*	-.130*
Personal Asceticism	-.304	.222	-.074	-.000
CONTROLS:				
Age	.322*	.040	.079*	.198*
Race	-.388	.467	-.095	-.000
Gender	.299*	.134	.073*	.044*
SES	-.015	.039	-.004	-.000
Adult NQ	.864	.535	.211	.020
Peer NQ	-.687*	.253	-.168*	-.058*
INTERCEPT	-2.934			
<hr/>				
-2 Log L (intercept)	1574.55			
-2 Log L (model)	1366.59			
Model $\chi^2$	207.96 w/ 9 d.f.			
$R_L$	.347			
mean of Y	.424			
N	1155			
<hr/>				
P(Y=1)				
strongly religious	.14			
weakly religious	.70			
<hr/>				

\*  $p < .05$

Table 14: Logistic Regression Parameter Estimates for Tests of the Stark et al. Moral Communities Hypothesis on Adolescent Alcohol Use.

=====				
MODEL 1				
Low Aggregate Religiosity				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.208*	.104	-.034*	-.041*
Participatory Saliency	-.459*	.109	-.075*	-.115*
Personal Asceticism	-.299	.279	-.049	-.000
CONTROLS:				
Age	.454*	.051	.074*	.256*
Race	.593	.330	.097	.032
Gender	.210	.162	.034	.000
SES	-.006	.039	-.001	-.000
Adult NQ	-.313	.377	-.051	-.000
Peer NQ	-.434	.278	-.071	-.019
INTERCEPT	-4.427			
<hr/>				
-2 Log L (intercept)	1191.47			
-2 Log L (model)	1021.97			
Model $\chi^2$	169.50 w/ 9 d.f.			
$R_L$	.357*			
mean of Y	.795			
N	1173			
<hr/>				
P(Y=1)				
strongly religious	.56			
weakly religious	.93			
<hr/>				

\*  $p < .05$

Table 14 continued:

=====				
MODEL 2				
High Aggregate Religiosity				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	.008	.116	.001	.000
Participatory Salience	-.581*	.121	-.076*	-.146*
Personal Asceticism	-.550	.313	-.072	-.033
CONTROLS:				
Age	.398*	.055	.052*	.227*
Race	.577	.556	.076	.000
Gender	.227	.181	.030	.000
SES	.014	.051	.002	.000
Adult NQ	.387	.528	.051	.000
Peer NQ	-.347	.349	-.045	-.000
INTERCEPT	-3.391			
<hr/>				
-2 Log L (intercept)	991.11			
-2 Log L (model)	863.36			
Model $\chi^2$	127.75 w/ 9 d.f.			
$R_L$	.333*			
mean of Y	.845			
N	1150			
<hr/>				
P(Y=1)				
strongly religious	.63			
weakly religious	.94			
<hr/>				

\*  $p < .05$

Table 15: Summary of Cross-Model Comparisons for the Moral Communities Models.

---

	$P_k$	$R_k$	$P(Y=1)$
<u>Marijuana Use</u>			
religiousness	NS	NS	----
participatory salience	NS	NS	----
personal asceticism	NS	NS	----
strongly religious	----	----	NS
<u>Alcohol Use</u>			
religiousness	NS	NS	----
participatory salience	NS	NS	----
personal asceticism	NS	NS	----
strongly religious	----	----	NS

---

S indicates support for the Moral Communities hypothesis,  
NS indicates non-support.



APPENDIX G

RESULTS OF TESTS OF THE INTEGRATED MORAL  
COMMUNITIES-NORM QUALITIES HYPOTHESIS

Table 16: Logistic Regression Parameter Estimates for Tests  
of the Integrated Moral Communities - Norm  
Qualities Hypothesis on Adolescent Marijuana Use.

=====

MODEL 1

Low Aggregate Religiosity and Perceived Prescriptiveness

	$b_k$	$se(b_k)$	$P_k$	$R_k$
RELIGIOSITY:				
Religiousness	-.418*	.099	-.099*	-.112*
Participatory Salience	-.451*	.100	-.107*	-.120*
Personal Asceticism	-.187	.247	-.045	-.000
CONTROLS:				
Age	.348*	.049	.083*	.195*
Race	-.259	.335	-.062	-.000
Gender	.195	.147	.046	.000
SES	.031	.037	.007	.000
Adult NQ	.434	.450	.103	.000
Peer NQ	-.017	.263	-.004	-.000
INTERCEPT	-3.637			
-----				
-2 Log L (intercept)	1272.14			
-2 Log L (model)	1122.49			
Model $\chi^2$	149.66 w/ 9 d.f.			
$R_L$	.322*			
mean of Y	.389			
N	952			
-----				
P(Y=1)				
strongly religious	.12			
weakly religious	.70			

\*  $p < .05$

Table 16 continued:

=====				
MODEL 2				
Low Aggregate Religiosity and Perceived Proscriptiveness				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
-----				
RELIGIOSITY:				
Religiousness	.271	.474	.067	.000
Participatory Salience	-.139	.458	-.035	-.000
Personal Asceticism	-1.899*	.886	-.437*	-.166*
CONTROLS:				
Age	.100	.211	.025	.000
Race	2.217	1.450	.552	.060
Gender	-.503	.610	-.125	-.000
SES	-.466*	.167	-.116*	-.249*
Adult NQ	.102	1.225	.025	.000
Peer NQ	-8.518	19.417	-2.121	-.000
INTERCEPT	-2.028			
-----				
-2 Log L (intercept)	94.03			
-2 Log L (model)	71.00			
Model $\chi^2$	23.04 w/ 9 d.f.			
$R_L$	.231*			
mean of Y	.471			
N	68			
-----				
P(Y=1)				
strongly religious	.14			
weakly religious	.43			

\*  $p < .05$

Table 16 continued:

=====				
MODEL 3				
High Aggregate Religiosity and Perceived Prescriptiveness				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
-----				
RELIGIOSITY:				
Religiousness	-.370*	.094	-.089*	-.100*
Participatory Salience	-.435*	.092	-.105*	-.122*
Personal Asceticism	-.144	.243	-.035	-.000
CONTROLS:				
Age	.312*	.043	.075*	.192*
Race	-.736	.494	-.177	-.013
Gender	.308*	.144	.074*	.043*
SES	-.014	.041	-.003	-.000
Adult NQ	.809	.591	.195	.000
Peer NQ	-.648*	.266	-.156*	-.054*
INTERCEPT	-2.410			
-----				
-2 Log L (intercept)	1356.18			
-2 Log L (model)	1184.84			
Model $\chi^2$	171.34	w/ 9 d.f.		
$R_L$	.336*			
mean of Y	.403			
N	1006			
-----				
P(Y=1)				
strongly religious	.15			
weakly religious	.70			

\*  $p < .05$

Table 16 continued:

=====				
MODEL 4				
High Aggregate Religiosity and Perceived Proscriptiveness				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.154	.403	-.038	-.000
Participatory Salience	-.221	.419	-.055	-.000
Personal Asceticism	-2.344*	1.170	-.586*	-.154*
CONTROLS:				
Age	.459*	.194	.115*	.206*
Race	----	----	----	----
Gender	.194	.625	.048	.000
SES	-.087	.178	-.022	-.000
Adult NQ	----	----	----	----
Peer NQ	-.393	1.136	-.098	-.000
INTERCEPT	-5.683			
<hr/>				
-2 Log L (intercept)	84.55			
-2 Log L (model)	67.55			
Model $\chi^2$	17.00 w/ 9 d.f.			
$R_L$	.188*			
mean of Y	.508			
N	61			
<hr/>				
P(Y=1)				
strongly religious	.07			
weakly religious	.70			
<hr/>				
* $p < .05$				

Table 17: Rankings of the Relative Strength of the Effects of Religiosity and Personal Asceticism on Adolescent Marijuana Use.

	Model 1	Model 2	Model 3	Model 4
Religiousness:				
$P_k$	4	1	3	2
$R_k$	4	1	3	2
Participatory Salience:				
$P_k$	4	3	1	2
$R_k$	3	1	4	2
Personal Asceticism:				
$P_k$	2	3	1	4
$R_k$	1	4	1	3
P(Y=1) Strongly Religious:	3	2	1	4

Strength of effect rankings are ordered such that a value of 4 indicates the strongest observed effect and a value of 1 the weakest observed effect.

Table 18: Logistic Regression Parameter Estimates for Tests  
of the Integrated Moral Communities - Norm  
Qualities Hypothesis on Adolescent Alcohol Use.

=====

MODEL 1

Low Aggregate Religiosity and Attributed Prescriptiveness

	$b_k$	$se(b_k)$	$P_k$	$R_k$
<hr/>				
RELIGIOSITY:				
Religiousness	-.209	.144	-.027	-.012
Participatory Saliency	-.149	.162	-.020	-.000
Personal Asceticism	-.315	.379	-.041	-.000
CONTROLS:				
Age	.569*	.074	.075*	.306*
Race	.218	.611	.029	.000
Gender	.098	.229	.013	.000
SES	.042	.055	.006	.000
Adult NQ	-.349	.469	-.046	-.000
Peer NQ	-.659	.392	-.086	-.037
INTERCEPT	-6.306			
<hr/>				
-2 Log L (intercept)	600.42			
-2 Log L (model)	514.94			
Model $\chi^2$	85.48 w/ 9 d.f.			
$R_L$	.335*			
mean of Y	.845			
N	695			
<hr/>				
P(Y=1)				
strongly religious	.76			
weakly religious	.93			

\*  $p < .05$

Table 18 continued:

=====

MODEL 2  
Low Aggregate Religiosity and Attributed Proscriptiveness

	$b_k$	$se(b_k)$	$P_k$	$R_k$
RELIGIOSITY:				
Religiousness	-.297	.182	-.059	-.040
Participatory Salience	-.601*	.192	-.120*	-.139*
Personal Asceticism	-.577	.474	-.115	-.000
CONTROLS:				
Age	.319*	.084	.064*	.174*
Race	.070	.482	.014	.000
Gender	.298	.276	.060	.000
SES	-.056	.065	-.011	-.000
Adult NQ	-.571	.712	-.114	-.000
Peer NQ	.136	.475	.027	.000
INTERCEPT	-1.464			
-----				
-2 Log L (intercept)	406.69			
-2 Log L (model)	350.49			
Model $\chi^2$	56.20 w/ 9 d.f.			
$R_L$	.306*			
mean of Y	.722			
N	343			
-----				
P(Y=1)				
strongly religious	.32			
weakly religious	.93			

\*  $p < .05$



Table 18 continued:

=====				
MODEL 3				
High Aggregate Religiosity and Attributed Prescriptiveness				
	$b_k$	$se(b_k)$	$P_k$	$R_k$
-----				
RELIGIOSITY:				
Religiousness	-.032	.137	-.004	-.000
Participatory Saliency	-.490*	.145	-.056*	-.115*
Personal Asceticism	-.482	.381	-.055	-.000
CONTROLS:				
Age	.384*	.064	.044*	.217*
Race	.617	.703	.070	.000
Gender	.054	.212	.006	.000
SES	-.037	.060	-.004	-.000
Adult NQ	.329	.655	.038	.000
Peer NQ	.215	.494	.025	.000
INTERCEPT	-3.039			
-----				
-2 Log L (intercept)	711.63			
-2 Log L (model)	633.79			
Model $\chi^2$	77.84 w/ 9 d.f.			
$R_L$	.290*			
mean of Y	.869			
N	917			
-----				
P(Y=1)				
strongly religious	.69			
weakly religious	.95			
-----				
* p < .05				

Table 18 continued:

MODEL 4  
High Aggregate Religiosity and Attributed Proscriptiveness

	$b_k$	$se(b_k)$	$P_k$	$R_k$
RELIGIOSITY:				
Religiousness	-.093	.288	-.018	-.000
Participatory Saliency	-.613*	.281	-.121*	-.118*
Personal Asceticism	-.686	.729	-.136	-.000
CONTROLS:				
Age	.458*	.135	.091	.220*
Race	2.861*	1.426	.566*	.101*
Gender	.697	.438	.138	.052
SES	.109	.118	.022	.000
Adult NQ	.508	1.237	.101	.000
Peer NQ	-1.208	.687	-.239	-.074
INTERCEPT	-6.893			
-----				
-2 Log L (intercept)	197.87			
-2 Log L (model)	163.94			
Model $\chi^2$	33.93 w/ 9 d.f.			
$R_L$	.284*			
mean of Y	.729			
N	169			
-----				
P(Y=1)				
strongly religious	.41			
weakly religious	.92			

\*  $p < .05$

Table 19: Rankings of the Relative Strength of the Effects of Religiosity and Personal Asceticism on Adolescent Alcohol Use.

	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>	<u>Model 4</u>
Religiousness:				
$P_k$	3	4	1	2
$R_k$	3	4	1	2
Participatory Salience:				
$P_k$	1	3	2	4
$R_k$	1	4	2	3
Personal Asceticism:				
$P_k$	1	3	2	4
$R_k$	1	1	1	1
P(Y=1) Strongly Religious:	1	4	2	3

Strength of effect rankings are ordered such that a value of 4 indicates the strongest observed effect and a value of 1 the weakest observed effect.

APPENDIX H

TABLE OF PREDICTED PROBABILITIES OF ALCOHOL  
AND MARIJUANA USE ACROSS  
THEORETICAL MODELS

Table 20: Predicted Probabilities of Alcohol and Marijuana Use for Strongly and Weakly Religious Adolescents across Theoretical Models.

	Model 1	Model 2	Model 3	Model 4	Model 5
<u>Marijuana Use</u>					
strongly religious:	.17	.15	.13	.14	.07
weakly religious:	.69	.72	.69	.69	.70
difference:	.52	.57	.56	.55	.63
improvement over Model 1:		.05	.04	.03	.11
<u>Alcohol Use</u>					
strongly religious:	.69	.60	.38	.56	.41
weakly religious:	.93	.93	.93	.93	.93
difference:	.24	.33	.55	.37	.52
improvement over Model 1:		.09	.31	.13	.28

Model 1 = original Anti-asceticism model:

Model 2 = Burkett's revision

Model 3 = Norm Qualities model

Model 4 = Moral Communities model

Model 5 = integrated model

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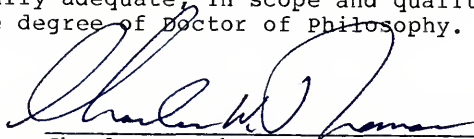
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